Reference

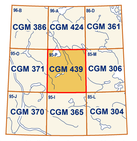
Deblonde, C., Cocking, R.B., Kerr, D.E., Campbell, J.E., Eagles, S., Everett, D., Huntley, D.H., Ingila, E., Parent, M., Plouffe, A., Robertson, L., Smith, I.R., and Weatherston, A., 2019: Surficial Data Model: the science language of the integrated Geological Survey of Canada data model for surficial geology maps; Geological Survey of Canada, Open File 8236, ver. 2.4.0, 1 .zip file. https://doi.org/10.4095/315021

Abstract

The Keller Lake map area contains three glacial terrains. First, ridged and fluted till cover the northeast region above 300 m elevation. Second, streamlined till, including mega-scale glacial lineations, and till plain with an extensive organic cover, dominate a low-lying basin in the north-central and central regions. Third, till blanket, ridged till, and undifferentiated till cover the highlands at 375 to 575 m elevation in the southeast, south, and west. A dominant regional northwestward ice flow first crossed the map area. Subsequently, an ice stream developed late during deglaciation, creating northwesterly oriented mega-scale glacial lineations in north-central regions. Late shifts in ice flow in the northeastern highlands also resulted in west-northwestward flutings superimposed on older northwestward-trending drumlinoids. Retreating remnant ice deposited minor moraines and other ridges over fluted till. In the extreme southeast, glacial Lake McConnell inundated lowlands to 275 m elevation, following retreat of southwesterly flowing ice. Meltwater corridors and glaciofluvial sediments are more prevalent in western regions and record variable flow directions.

Résumé

La région cartographique de Keller Lake est caractérisée par trois terrains glaciaires. Premièrement, une couverture de till à crêtes et à cannelures occupe la région du nord-est à une altitude de 300 m ou plus. Deuxièmement, du till profilé, comprenant entre autres des mégalinéations glaciaires, ainsi qu'une plaine de till dotée d'une importante couverture organique s'étendent en prédominance dans un bassin de faible altitude dans les régions du centre nord et du centre. Troisièmement, une nappe de till, des crêtes de till et du till non différencié recouvrent les hautes terres entre 375 et 575 m d'altitude au sud-est, au sud et à l'ouest. Un écoulement glaciaire régional dominant vers le nord-ouest a d'abord traversé la région cartographique. Par la suite, un courant glaciaire s'est formé tard lors de la déglaciation, créant des mégalinéations glaciaires dans les régions du centre nord. Des changements tardifs de la direction de l'écoulement glaciaire dans les hautes terres du nord-est ont aussi donné lieu à la formation de cannelures glaciaires de direction ouest-nord-ouest qui se superposent à des drumlinoïdes plus anciens de direction nord-ouest. De la glace résiduelle en retrait a entraîné le dépôt de moraines mineures et d'autres crêtes sur du till cannelé. À l'extrême sud-est, le Lac glaciaire McConnell a inondé les basses terres jusqu'à 275 m d'altitude à la suite du retrait des glaces s'écoulant vers le sud-ouest. Des corridors d'eau de fonte et des sédiments fluvioglaciaires sont plus fréquents dans les régions de l'ouest et rendent compte de directions d'écoulement variables.



National Topographic System reference and index to adjoining published Geological Survey of Canada maps

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CANADIAN GEOSCIENCE MAP 439
RECONNAISSANCE SURFICIAL GEOLOGY
KELLER LAKE
Northwest Territories
NTS 95-P
1:125 000

QUATERNARY

HOLOCENE

POSTGLACIAL ENVIRONMENT

ORGANIC DEPOSITS: accumulation of in situ vegetative material.

Owb — **Bog deposits:** organic accumulations; may include fine-grained mineral soil; 0.5 to 3 m thick or more; raised deposits bordering lake margins and in low-lying areas on till, but most extensive on till plain in depressions between streamlined ridges; may include peat plateaus with small tundra ponds and thermokarst depressions.

O — **Organic deposits, undifferentiated:** fen, bog, muskeg, floating aquatic and strings of vegetation in lakes and ponds; 0.5 to 2 m thick or more; poor surface drainage; widespread and commonly overlying till in low-lying areas, but most extensive on till plain.

COLLUVIAL AND MASS-WASTING DEPOSITS: material deposited at base or along side of hillslopes by various processes.

C — **Colluvial deposits, undifferentiated:** diamicton; variable thickness; deposits resulting from gravity-induced movement along steep morainal slopes; eroded and gullied.

ALLUVIAL SEDIMENTS: silt, sand, and gravel deposited by modern streams and rivers since deglaciation.

Ap — **Floodplain sediments:** sand, gravel, and cobbles; variable thickness; seasonally flooded by active braided streams and rivers, and includes meandering environments; inactive areas may be overlain by organic deposits; more-elevated surfaces may exhibit paleochannels.

Af — **Fan sediments:** silt, sand, and gravel; variable thickness; deposited by streams as fan-shaped deposits; inactive surfaces are vegetated; appears only as secondary unit in stratigraphic relationships within polygons.

At — **Terraced sediments:** silt, sand, and gravel; variable thickness; deposited by streams and rivers; forming raised terraces along active floodplains; inactive surfaces may be vegetated.

A — **Alluvial sediments, undifferentiated:** silt, sand, and gravel; variable thickness; deposited by rivers and streams; includes inactive and seasonally flooded terrain and minor terraces along modern meandering streams and rivers; may include various alluvial environments, including meandering scars and scroll ridges; may be overlain by organic deposits.

LACUSTRINE SEDIMENTS: silt and sand; associated with modern lakes.

Lr — **Beach sediments:** sand; variable thickness; derived mainly from reworked till; forming active beaches along lakes.

Ld — **Deltaic sediments:** silt to gravel; variable thickness; formed where alluvial sediments enter a lake; forming a gently sloping delta surface which may exhibit braided channels or be overlain by organic deposits.

Ln — **Littoral and nearshore sediments:** silt and sand; variable thickness; represent exposed sediments in partially drained lakes; may include organic deposits.

LATE PLEISTOCENE (WISCONSIN GLACIATION)

PROGLACIAL AND GLACIAL ENVIRONMENT

GLACIOLACUSTRINE SEDIMENTS: sediments deposited at or beyond a retreating ice front by meltwater entering a glacial lake; may contain ground ice; surface may be vegetated.

GLd — **Deltaic sediments:** silt to gravel; variable thickness; associated with glacial Lake McConnell; forming gently sloping delta at 270 m elevation deposited as proglacial outwash, ice-contact, and more distal outwash sediments by meltwater; surfaces may exhibit paleochannels.

GLn — **Littoral and nearshore sediments:** silty clay to fine sand; variable thickness; commonly draped over till; may be overlain by marl, muskeg, and organic deposits of variable thickness; may contain thermokarst features.

GLACIOFLUVIAL SEDIMENTS: sand and gravel; deposited by meltwater flowing from, or in contact with, glacier ice; may contain ground ice; surface may be vegetated.

GFp — **Outwash plain sediments:** sand and gravel; variable thickness; generally flat-topped; occur as a plain, may include minor terraces along active meandering rivers and ice-contact sediments; surfaces may exhibit meltwater paleochannels and be vegetated.

GFf — **Outwash fan sediments:** sand and gravel; variable thickness; forming broad, gently sloping proglacial outwash fans at the mouths of subaerial meltwater channels; surfaces exhibit meltwater paleochannels.

GFc — **Ice-contact sediments:** sand and gravel to cobbles; variable thickness; flat to irregular surface; may include till and organic deposits; may contain kettles and eskers.

GFr — **Esker sediments:** sand and gravel to cobbles; variable thickness; deposited by glacial meltwater; forming flat and sharp-crested ridges deposited in subglacial and englacial tunnels and channels of glacier; may contain kettles; may exhibit beaches where submerged by glacial Lake McConnell.

GLACIAL ENVIRONMENT

GLACIAL SEDIMENTS (TILL): unsorted glacial debris, diamicton; deposited beneath or along the margin of glacier as lodgment till, meltout till, and gravity-flow deposits; may contain ground ice; surface may be vegetated.

Tr — **Ridged till:** diamicton; variable thickness; areas of minor, irregular to sinuous morainal ridges with variable orientations (from transverse to parallel to ice flow) in west-central and south-central regions, with occasional short major moraine ridges; may include meltwater corridors and small eskers; ribbed moraine may overlie streamlined till in uplands of the northeast.

Ts — **Streamlined till:** diamicton; variable thickness; strongly fluted till defined by a close grouping of drumlinoids and drumlins of various dimensions; highly elongated; up to 10 km or more in length (mega-scale glacial lineations) in the north-central and northeast regions; may exhibit shorter crosscutting flutings superimposed on larger forms; locally dissected by meltwater channels; overlain by unit Tr in the highlands of the northeast map area; locally overlain by organic deposits.

Tp — **Till plain:** diamicton; variable thickness but greater than 2 m; generally a featureless, flat to gently inclined surface in the central map area, which is fluted at higher elevations; may be overlain by extensive organic deposits.

Tb — **Till blanket:** diamicton; greater than 2 m thick; generally occurs as a featureless to fluted, moderately to steeply sloping surface on the mid to lower flanks of highlands in the map area; locally dissected by meltwater channels.

T — **Till, undifferentiated:** diamicton; variable thickness but generally greater than 2 m thick; locally contains large-scale subdued flutings, minor ridges, meltwater channels, and rare meltwater erosional depressions; generally associated with hilly topography of the highlands in the west-central and southeast map areas.

Stratigraphic relationship: two map-unit designators separated by a slash (/) are used where a stratigraphic relationship is observed or confidently inferred (e.g. Tr/Ts indicates ridged till overlying streamlined till). The map-unit polygon is coloured according to the overlying unit.

- Geological boundary, defined
- Landslide scar, oriented
- Thermokarst depression
- Patterned ground, ice wedge
- Terrace scarp, may include preglacial river channels in Shegonla Hills
- Beach crest, depositional and erosional, trim lines, 260 to 275 m a.s.l.
- Kettle lake
- Meltwater channel:
  - *Minor, direction unknown*
  - *Minor, direction known*
  - *Major scarp*
- Meltwater erosional depression
- Moraine ridge:
  - *Minor, ribbed, unspecified ridges, may include crevasse fillings*
  - *Major, recessional, unspecified*
- Ice-contact scarp
- Kame
- Esker:
  - *Direction unspecified*
  - *Direction inferred*
  - *With beach ridges, direction inferred*
- Drumlinoid ridge, mega-scale glacial lineation:
  - *Buried, 1 = oldest*
  - *Well defined, 1 = oldest, 3 = youngest*
- Drumlin ridge, 1 = oldest, 2 = youngest
- Fluted drift, mega-scale glacial lineation, poorly defined, generally overlain by organics; microrelief defined by vegetation changes, 1 = oldest

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Geological Survey of Canada
Canadian Geoscience Maps

Canada

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Geology by D.E. Kerr and H.B. O'Neill, 2019, based on airphoto interpretation of 1:60 000 scale NAPL airphotos taken in 1974

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

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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

CANADIAN GEOSCIENCE MAP 439
RECONNAISSANCE SURFICIAL GEOLOGY
KELLER LAKE
Northwest Territories
NTS 95-P
1:125 000

2 0 2 4 6 8 10 km

Mean magnetic declination 2022, 18°57'E, decreasing 12.6' annually.
Readings vary from 18°34'E in the SE corner to 19°17'E in the NW corner of the map.

This map is not to be used for navigational purposes.

Title photograph: Highly elongated drumlinoids, up to 10 km long, lac Taché, Northwest Territories. Photograph by the National Air Photo Library. NAPL photo A23813-176

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Data may include additional observations not portrayed on this map. See map info document accompanying the downloaded data for more information about this publication.

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