



Natural Resources
Canada

Ressources naturelles
Canada

**GEOLOGICAL SURVEY OF CANADA
OPEN FILE 8041**

**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**

**R.B. Cocking, C. Deblonde, D.E. Kerr, J.E. Campbell, S. Eagles,
D. Everett, D.H. Huntley, E. Inglis, A. Laviolette, M. Parent,
A. Plouffe, L. Robertson, I.R. Smith, and A. Weatherston**

2016

Canada 



**GEOLOGICAL SURVEY OF CANADA
OPEN FILE 8041**

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

**R.B. Cocking, C. Deblonde, D.E. Kerr, J.E. Campbell, S. Eagles,
D. Everett, D.H. Huntley, E. Inglis, A. Laviolette, M. Parent,
A. Plouffe, L. Robertson, I.R. Smith, and A. Weatherston**

2016

© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2016

Information contained in this publication or product may be reproduced, in part or in whole, and by any means, for personal or public non-commercial purposes, without charge or further permission, unless otherwise specified.

You are asked to:

- exercise due diligence in ensuring the accuracy of the materials reproduced;
 - indicate the complete title of the materials reproduced, and the name of the author organization; and
 - indicate that the reproduction is a copy of an official work that is published by Natural Resources Canada (NRCan) and that the reproduction has not been produced in affiliation with, or with the endorsement of, NRCan.
- Commercial reproduction and distribution is prohibited except with written permission from NRCan. For more information, contact NRCan at nrcan.copyrightdroitdauteur.nrcan@canada.ca.

doi:10.4095/298767

This publication is available for free download through GEOSCAN (<http://geoscan.nrcan.gc.ca/>).

Recommended citation

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

Contents

Introduction	4
Background and objective.....	4
Science language and symbolization	5
Map units.....	6
Map-unit definition.....	6
Map-unit designators.....	6
Map-unit legend description	8
Map-unit legend order.....	8
Map-unit boundaries	8
Geomorphological features (polygons, lines, and points).....	8
Geomorphological feature definition	8
Overlay Polygon.....	9
Line	9
Point	9
Field observations and measurements symbolized on maps.....	9
Field observations and measurement definition.....	9
Geomorphological feature order in the map legend	10
References	11
Acknowledgments.....	11
Version History.....	12
Table 1: New and modified features	13
Table 2: Map-unit polygons (GEO_POLYS).....	24
Map-unit polygons>Glacial sediments - Till plain (unspecified)	24
Map-unit polygons>Glacial sediments - Till plain (Carbonate/calcareous)	25
Table 3: Map-unit boundaries.....	26
Table 4: Geomorphological overlay polygons (GEM_POLYS).....	27
Geomorphological overlay polygons>Miscellaneous>Annular depression (large)	27
Table 5: Geomorphological lines (GEM_LINES).....	28
Geomorphological lines>Miscellaneous features>Sediment transport direction>Direction unknown or unspecified	28
Geomorphological lines>Miscellaneous features>Sediment transport direction>Direction known	30
Geomorphological lines>Ice-movement indicators>Margin of dispersal train>Left side>Approximate	31
Geomorphological lines>Ice-movement indicators>Margin of dispersal train>Right side>Approximate	32
Geomorphological lines>Ice-movement indicators>Margin of dispersal train>Left side>Defined	33
Geomorphological lines>Ice-movement indicators>Margin of dispersal train>Right side>Defined	34
Table 6: Geomorphological points (GEM_POINTS).....	35
Geomorphological points>Miscellaneous>Annular depression (small)	35
Table 7: Geological events.....	36
Chronostratigraphy	36
Ice provenance.....	36
Glaciation.....	37
Interglaciation	36
Glacial advance/readvance.....	38
Other	38
Table 8: Examples of map-unit information in the geodatabase.....	39
Table 9: Table header descriptions	40
Geomorphological feature / Entités géomorphologiques.....	40
Map-unit polygon / Unités cartographiques - polygone	43
Geological event / Événement géologique	45

Introduction

The Geological Survey of Canada (GSC) through the Geo-mapping for Energy and Minerals Program (GEM) has undertaken the Geological Map Flow project (GMF) to develop protocols for the collection, management (compilation, interpretation), and dissemination of surficial and bedrock geology data and map information. This document presents the version 2.2.0 of the science language implemented in the GIS data model and workflow for the production of surficial geology maps and datasets at the GSC. It represents an update by the GSC Surficial Geology Legend Committee to the Surficial Data Model (SDM) version 2.1.0 that was published by Cocking et al., 2015.

Background and objective

The science language for surficial geology maps was designed with the objective of facilitating the transition from the traditional way of publishing paper maps to the production of standardized digital data sets with a structured database. Hence, the focus of this document is largely based on symbolization with an effort to standardize the scientific terminology used to describe the various entities present on a surficial geology map. The GIS data model and workflow are implemented using ESRI™ ArcGIS™ geodatabase and software.

This Open File contains a summary of additions and modifications (new map units, line and point symbols, feature subtypes, notes on usage, etc.), and a revised suggested order of map units as well as symbols for legends. New users are encouraged to review Open File 7631 and Open File 7741 for a complete description of the Surficial Data Model.

The science language originated from an extensive review of existing geological data models and map legends (Canadian and international). It was then refined by a small working group, known as the GSC Surficial Legend Review Committee, through iterative consultations with GSC surficial geology mappers. The first version of the surficial data model was published as version 1.2 (Deblonde et al., 2012). The working group consists of surficial geology mappers, science editors, and GIS experts.

Following the implementation of version 1.2 of the data model and workflow, all comments and change requests provided by the GSC surficial geology mappers and GIS users were evaluated by the GSC Surficial Legend Review Committee and when required were discussed with the submitters. This Open File presents the resulting updated version of the surficial data model: version 2.2.0.

The science language for surficial geology maps produced by the GSC will continue to evolve as per the requirements of surficial geology mappers. The science language will be updated annually if required. Submission for additions or changes by GSC mappers should be done using these forms:

Surficial Feature Modification Form (English)	PDF	Use this form to submit suggestions for a symbol for a surficial geological feature.
Formulaire visant la modification d'entités superficielles (Français)	PDF	Utilisez ce formulaire pour soumettre des suggestions pour un symbole pour une structure géologique des dépôts meubles.

The completed forms should be sent to the “[Surficial Geology Legend/Légende des formations superficielles](#)” email available in the Natural Resources Canada internal email address list. Questions, comments, and suggested changes by collaborators outside the GSC are welcome. They can be sent to any of the authors of this publication. The annual deadline for submitting suggested changes or additions is November 1st. All submissions will be reviewed by the Surficial Legend Review Committee by December 1st of that year and approved changes will be implemented in the surficial data model by February 1st of the following year. Requested changes should be submitted as soon as they are identified by mappers to avoid a large number of review requests in November of each year.

Science language and symbolization

As an integral part of the data model, this document presents changes to the science language and data symbolization required to produce standardized surficial geology data and maps at a scale of 1:100 000; however, the same symbols and units are applicable for surficial geology maps at a range of scales.

The science language is divided into three components:

- 1) Map units (polygons and boundaries)
- 2) Geomorphological features (polygons, lines, and points)
- 3) Field observations and measurements

Field observations and measurements are digitally recorded using a field data collection tool (i.e. GanFeld).

Each of these components is defined in the sections below. A summary of the new or modified entities as depicted in the data model is presented in Table 1.

Table 2 through Table 6 in this Open File present a detailed description of each new or modified entity according to its cartographic representation and highlights the changes between the previous version (2.1.0) of the model and this most current version (2.2.0).

Geological events are used to assign an absolute or relative age to map units and geomorphological features. Table 7 presents a preliminary list of glaciation and/or interglaciation geological events that can be depicted on surficial geology maps. No changes have been made to the geological events in this version.

Table 8 shows five examples of map-unit information as used in the geodatabase while Table 9 gives a description of the headers used in Table 2 through Table 6.

Table A-Tables included in this report.

Table	Information
1	Summary of all new or modified features depicted in the data model
2	Map-unit polygons (GEO_POLYS)
3	Map-unit boundaries (GEO_BOUNDS)
4	Geomorphological overlay polygons (GEM_POLYS)
5	Geomorphological lines (GEM_LINES)
6	Geomorphological points (GEM_POINTS)
7	Geological events
8	Examples of map-unit information in the geodatabase
9	Table header descriptions

Open File 7631 also contains one poster: 'Appendix A. Science language version 2.0.'

Map units

Map-unit definition

A map unit is defined as an area of ground distinguishable from surrounding areas by field observation and/or remotely sensed data (e.g. aerial photographs). Map units are based on the physical extent and geometry of the unconsolidated sediments lying between the bedrock and the surface, the sediment properties and characteristics (composition, stratigraphy, surface morphology, thickness, and other properties), and their relationship to other map units. Map units are delineated either in the field or on imagery based on, for example, morphology, thickness, tone, texture, patterns, landform association, vegetation, or feature orientation. These attributes are then used to infer environment of deposition, genesis, and relative geological age. Field sites show where the map unit has been verified with ground observations.

Map-unit designators

A map unit is defined as a combination of upper- and lower-case letters that constitute the map-unit designators (e.g. Cz, Ap) (Fig. 1). One or two upper-case letters defines the dominant primary genesis of the sediments, process and/or environment of deposition, for example: GL = glaciolacustrine sediments and A = alluvial sediments. The genesis is followed by one or two lower-case letters that define the category and reflect one of the following (Fig. 1a):

- morphology
- environment of deposition
- thickness of deposit
- secondary processes

If required, the category is followed by a number that defines the subcategory of the map unit (Fig. 1b). The subcategory reflects the following:

- a process
- a depositional environment
- the sediment composition

- the structure

If for a given map unit, there is only one subcategory present within the map area (for example, all landslides are retrogressive thaw flow, Cz3), the subcategory is not necessary for the map unit designator but is captured in the database.

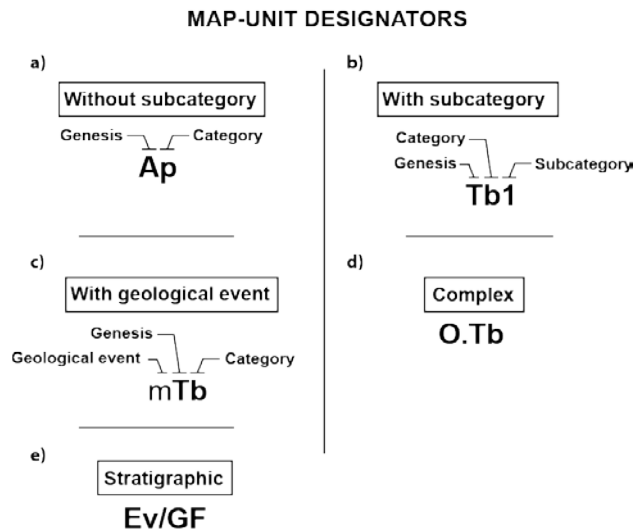


Figure 1 - Map-unit designators as labelled on maps.

In addition to subcategories, map units might need to be differentiated based on **geological events**. Geological events are defined based on time, provenance, depositional events, or erosional events, and can be divided according to one of the four following characteristics:

1. Chronostratigraphy (e.g. Late Wisconsinan versus Holocene)
2. Ice provenance (e.g. Laurentide versus Cordilleran ice sheets)
3. Glacial and nonglacial intervals of known or unknown absolute age (e.g. Amundsen glaciation and Liverpool Bay interglaciation)
4. Ice readvance (e.g. Tuk Phase ice advance)

The geological-event attribute can be depicted on a map as a prefix in front of the map-unit designator (Fig. 1c). Table 7 presents the current list of geological-event prefixes for map-unit designators. Each prefix is unique.

If a single geological-event attribute is present within a map area, the prefix is not necessary in the map-unit designator but is captured in the database. A prefix is only used for maps with two or more identical map units with different geological-event attribute (e.g. Late Wisconsinan (lw) till versus Neoglacial (n) till, see Table 7). In such a case, the geological-event prefix is mandatory for at least one of the map-unit designators to permit differentiation on the map.

Using the example above, a map with abundant Late Wisconsinan till-blanket polygons and few Neoglacial till-blanket polygons will preferably depict the former as Tb and the latter as nTb. lwTb may not be preferable, as the Late Wisconsinan time and/or provenance attribute (lw) would be the dominant and default geological-event attribute on the map; however, the author has the option to include the attribute prefixes for both types of time and/or provenance polygons, although it is not generally recommended.

As a general principle, the use of a single map-unit designator per polygon is preferred. A maximum of two map-unit designators can be used in cases where the surficial cover forms a complex pattern and the map units are too small to be mapped individually, yet constitute a significant aerial extent of the total polygon (e.g. O.Tb designates an area of organic deposits with numerous outcrops of till blanket). In such instances a dot ('.') is used to separate the map-unit designators (Fig. 1d). Also, a stratigraphic relationship can be shown with a maximum of

two map-unit designators separated by a slash (‘/’) (e.g. Ev/GF indicates Ev (eolian veneer) overlying GF (glaciofluvial sediments) (Fig. 1e). In both cases of using multiple map-unit designators, the first or the overlying designator determines the map-unit colour. The use of complex designators is not recommended where it is otherwise implicit (e.g. Tv.R or Tv/R). The second designator must also be included in the map legend. **Surficial geology mappers are encouraged to limit the use of complex designators and to avoid mapping large areas with complex designators.**

A complete list of map-unit designators and descriptions can be found in Table 2. Examples of map-unit information in the database can be found in Table 8.

Map-unit legend description

In the legend, map-unit descriptions should be presented in the following order: map-unit name, grain size, structure, colour, minimum and maximum thickness, morphology, stratigraphic relationships, depositional environment, and other characteristic features.

Map-unit legend order

Map-units in the legend should generally follow a chronological order with the oldest at the bottom and youngest at the top. The order might need to be adapted specifically to a map area.

Map-unit boundaries

Five types of geological boundaries are available to mappers: defined, approximate, inferred, concealed, and arbitrary through water. Defined, approximate, and inferred boundaries are used, in decreasing order, to define the level of confidence of the location of a map-unit boundary. A concealed boundary can be used, for example, where a defined boundary is now under water since the area was flooded following the construction of a water reservoir. Arbitrary boundaries through water are used during map production to close all polygons under water bodies. This contact type is not shown on the final published map.

Geomorphological features (polygons, lines, and points)

Geomorphological feature definition

Geomorphological features are landforms, sediments, or locations where specific data were collected. Depending on the mapping scale and the size of the feature on the ground, the observation will be represented as a polygon, a line, or a point superimposed on the map-unit polygon. Table 1 shows the summary list of geomorphological features.

Like the map units, geomorphological features are characterized by the environment of deposition, genesis, and relative geological age. These characteristics may be identical or different from the underlying map unit. For example, drumlins (geomorphological feature) could have the same environment of deposition, genesis, and relative age as the underlying till unit, but an active dune field could have different characteristics than the underlying glaciofluvial map unit. Furthermore, for certain features (e.g. terrace scarp, beach crest) the environment of formation generally can be deduced from the underlying and surrounding polygons, but it is also specified in the database.

Similar to map polygons, geological events can be associated with points, lines, overlay polygons, and field observations. They are not labeled on the map but captured in the database in the 'Geological event name' field.

Field observations and measurements are separated from other point features in the database to maintain this supplemental data collected in the field.

Overlay Polygon

An overlay polygon feature can either delineate a grouping of common thematic features that are too small to be mapped individually or a feature that is large enough to be shown as an area. The outline of the feature is digitized to be represented as a patterned symbol.

Line

Use a geomorphology line if the feature is too small to be shown as an area, but long enough to show its true length. The location, length, and orientation of the central axis are shown. The linear axis of the feature is digitized to be represented as a linear symbol. All line symbols are drawn to scale using the right-side rule: the arrow appears at the end of the line, and the ornamentation appears on the right side of the line as shown in Figure 2.



Figure 2 - Line digitizing direction.

Point

Use a geomorphology point if the feature is too small to be shown to scale as an area or a line. The centre location and orientation are shown. The centre location and direction of the feature are digitized to be represented as a point symbol. All point symbols are oriented with zero degrees pointing to the north and based at the centre of the symbol (Fig. 3).

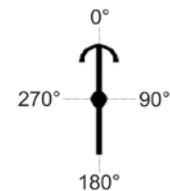


Figure 3 - Point digitizing direction

Field observations and measurements symbolized on maps

Field observations and measurement definition

Field observations and measurement information is recorded using a field data collection tool (i.e. GanFeld). Only the information that can be represented as a symbol on a map is shown in the field observations and measurements table (Table 7). The central location of the field site is digitized to be represented as a point symbol. Figure 4 shows the different data-collection processes.

In previous versions of the surficial data model, features that can appear as both field observation points and as geomorphology points had different symbols. For example, a hummock was symbolized as 3.14.01.016 in F_STATIONS and 3.14.01.019 in GEM_POINTS despite using

the same symbol. This version changes this so F_STATIONS and GEM_POINTS use the same symbol (3.14.01.019).

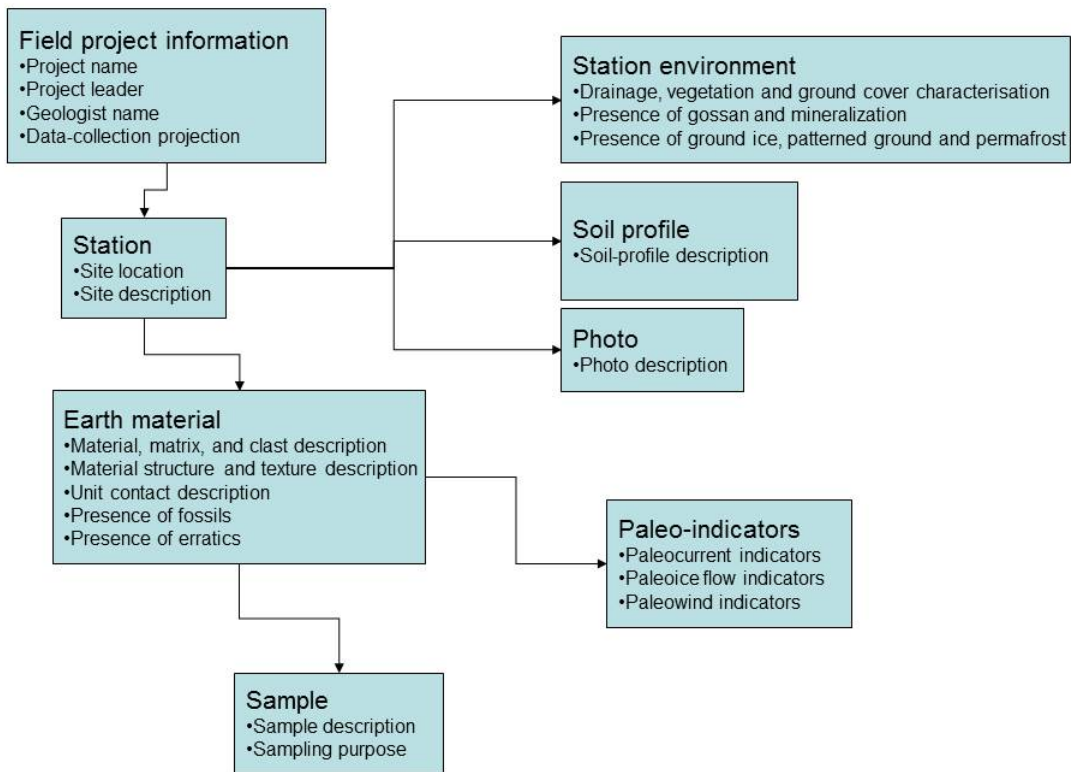


Figure 4 – Field data collection process.

Geomorphological feature order in the map legend

Line and point symbols should be placed below the map units. Like the map units, they should be listed in order of age with the youngest at the top. Generally, features on bedrock are assumed to be oldest. Features formed in subglacial settings are older than those associated with subaerial ice-contact processes, which are assumed to be older than features associated to proglacial sedimentation. Proglacial outwash features are assumed to be older than glacial-lake features. Items that do not have a geological time connotation (e.g. sampling site, gravel pit, field station) are placed at the bottom of the list.

References

Cocking, R., Deblonde, C., Kerr, D., Campbell, J., Eagles, S., Everett, D., Huntley, D., Inglis, E., Laviolette, A., Parent, M., Plouffe, A., Robertson, L., St-Onge, D., and Weatherston, A., 2015. Surficial Data Model, version 2.1.0: Revisions to the science language of the integrated Geological Survey of Canada data model for surficial geology maps; Geological Survey of Canada, Open File 7741, 276 p. doi:10.4095/294225

Deblonde, C., Plouffe, A., Boisvert, E., Buller, G., Davenport, P., Everett, D., Huntley, D., Inglis, E., Kerr, D., Moore, A., Paradis, S. J., Parent, M., Smith, R., St-Onge, D., and Weatherston, A., 2012. Science language for an integrated Geological Survey of Canada data model for surficial maps, Version 1.2; Geological Survey of Canada, Open File 7003, 238 p. doi:10.4095/290144

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

Acknowledgments

The science language presented here is the result of years of research and collaboration by many research scientists and GIS specialists across the GSC. The GMF project through the GEM program has been the catalyst for the accrued interest and involvement of the GSC community.

The first version of the model (1.2) was reviewed by I. McMartin and J. Bednarski. É. Boisvert, P. Davenport, and S.J. Paradis were major contributors to the initial version of the science language. At one time or another, many people have made a contribution to the model through discussions and comments including J.E. Campbell, A. Duk-Rodkin, A. Dyke, I. McMartin, R. Paulen, and D. Sharpe for the science language, and R. Boivin, M. Boutin, P. Brouillette, V. Dohar, É. Girard, G. Huot-Vézina, G. Lai, D. Lemay, L. MacDonald, K. Shimamura, and S. Williams for the data model.

The current surficial legend review committee includes the surficial geologists A. Plouffe, J.E. Campbell, D.H. Huntley, D.E. Kerr (committee chair), M. Parent, I.R. Smith, and D. St-Onge; the scientific editors E. Inglis, and A. Weatherston; the surficial data model developer R. Cocking; and the GIS specialists S. Eagles, D. Everett, and L. Robertson. The committee is aided by GanFeld developer G. Buller.

R.B. Cocking would like to thank C. Deblonde for her patient support in transitioning the Surficial Data Model.

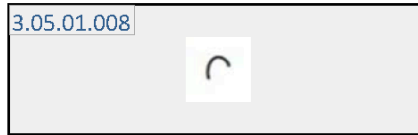
Comments and suggestions can be forwarded to any member of the surficial legend review committee.

Version History

Version	Main Author	Description
1.2	C. Deblonde	First version available for GSC use
2.0	C. Deblonde	Minor changes to the geodatabase schema and several additions and modifications to the geomorphological features and map units
2.0.1/2.0.2	C. Deblonde	Minor typographical edits
2.1.0	R. Cocking	Minor additions of new features; addition of geological terms in French in documentation only
2.2.0	R. Cocking	Minor additions of new features; removed redundant symbols between geomorphological points and field observations and measurements

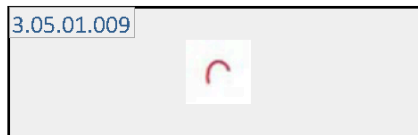
Table 1: New and modified features

F_PFLOW: Field Observations and Measurements Paleoflow
Dune observation location (direction known)



Field Name	Code	Code Description
Feature-type GSC symbol code	3.05.01.010	Dune observation location (direction known)
	¹ 3.05.01.008	Dune observation location (direction known)

F_PFLOW: Field Observations and Measurements Paleoflow
Dune observation location (direction unknown or unspecified)



Field Name	Code	Code Description
Feature-type GSC symbol code	3.05.01.011	Dune observation location (direction unknown or unspecified)
	¹ 3.05.01.009	Dune observation location (direction unknown or unspecified)

F_ENVIRON: Field Observations and Measurements Station Environment
Felsenmeer observation location (all)



Field Name	Code	Code Description
Feature-type GSC symbol code	3.12.01.025	Felsenmeer observation location (all)
	¹ 3.12.01.024	Felsenmeer observation location (all)

F_PFLOW: Field Observations and Measurements Paleoflow
Fluted bedrock or drift, measurement location (poorly defined; direction known)



Field Name	Code	Code Description
Feature-type GSC symbol code	3.08.01.031	Fluted bedrock or drift, measurement location (poorly defined; direction known)

¹ 3.08.01.029 Fluted bedrock or drift, measurement location (poorly defined; direction known)

F_PFLOW: Field Observations and Measurements Paleoflow
Fluted bedrock or drift, measurement location (poorly defined; direction unknown or unspecified)



Field Name	Code	Code Description
Feature-type GSC symbol code	3.08.01.032	Fluted bedrock or drift, measurement location (poorly defined; direction unknown or unspecified)
	¹ 3.08.01.030	Fluted bedrock or drift, measurement location (poorly defined; direction unknown or unspecified)

F_PFLOW: Field Observations and Measurements Paleoflow
Fluted bedrock or drift, measurement location (well defined or unspecified; direction known)



Field Name	Code	Code Description
Feature-type GSC symbol code	3.08.01.027	Fluted bedrock or drift, measurement location (well defined or unspecified; direction known)
	¹ 3.08.01.006	Fluted bedrock or drift, measurement location (well defined or unspecified; direction known)

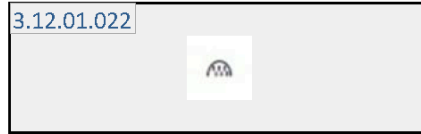
F_PFLOW: Field Observations and Measurements Paleoflow
Fluted bedrock or drift, measurement location (well defined or unspecified; direction unknown or unspecified)



Field Name	Code	Code Description
Feature-type GSC symbol code	3.08.01.028	Fluted bedrock or drift, measurement location (well defined or unspecified; direction unknown or unspecified)

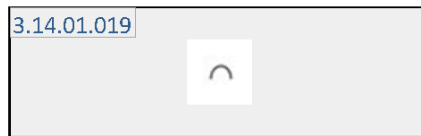
¹ 3.08.01.007 Fluted bedrock or drift, measurement location (well defined or unspecified; direction unknown or unspecified)

F_ENVIRON: Field Observations and Measurements Station Environment
Gelifluction-lobe or solifluction-lobe observation location (all)



Field Name	Code	Code Description
Feature-type GSC symbol code	3.12.01.018	Gelifluction-lobe or solifluction-lobe observation location (all)
	¹ 3.12.01.022	Gelifluction-lobe or solifluction-lobe observation location (all)

F_STATION: Field Observations and Measurements Station
Hummock observation location (all)



Field Name	Code	Code Description
Feature-type GSC symbol code	3.14.01.016	Hummock observation location (all)
	¹ 3.14.01.019	Hummock observation location (all)

F_PFLOW: Field Observations and Measurements Paleoflow
Minor moraine measurement location (orientation known)



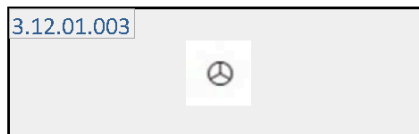
Field Name	Code	Code Description
Feature-type GSC symbol code	3.06.01.016	Minor moraine measurement location (orientation known)
	¹ 3.06.01.015	Minor moraine measurement location (orientation known)

F_ENVIRON: Field Observations and Measurements Station Environment
Patterned-ground observation location (all)



Field Name	Code	Code Description
Feature-type GSC symbol code	3.12.01.007	Patterned-ground observation location (all)
	¹ 3.12.01.002	Patterned-ground observation location (all)

F_ENVIRON: Field Observations and Measurements Station Environment
Pingo observation location (all)



Field Name	Code	Code Description
Feature-type GSC symbol code	3.12.01.008	Pingo observation location (all)
	¹ 3.12.01.003	Pingo observation location (all)

F_STATION: Field Observations and Measurements Station
Pre-crag observation location (all)



Field Name	Code	Code Description
Feature-type GSC symbol code	3.08.01.023	Pre-crag observation location (all)
	¹ 3.08.01.039	Pre-crag observation location (all)

F_ENVIRON: Field Observations and Measurements Station Environment
Rock-glacier observation location (all)



Field Name	Code	Code Description
Feature-type GSC symbol code	3.12.01.009	Rock-glacier observation location (all)
	¹ 3.12.01.004	Rock-glacier observation location (all)

F_ENVIRON: Field Observations and Measurements Station Environment
Rock-pingo observation location (all)



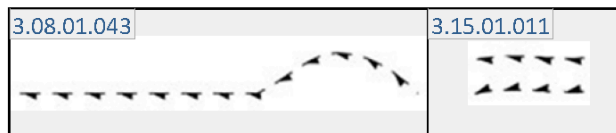
Field Name	Code	Code Description
Feature-type GSC symbol code	3.12.01.010	Rock-pingo observation location (all)
	¹ 3.12.01.005	Rock-pingo observation location (all)

F_ENVIRON: Field Observations and Measurements Station Environment
Thermokarst-depression observation location (all)



Field Name	Code	Code Description
Feature-type GSC symbol code	3.12.01.011	Thermokarst-depression observation location (all)
	¹ 3.12.01.006	Thermokarst-depression observation location (all)

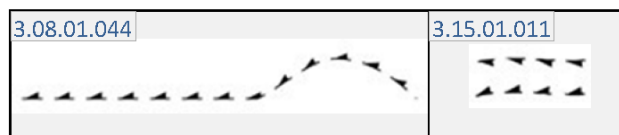
GEM_LINES: Linear Features
Dispersal train margin (confidence approximate; left side)



Field Name	Code	Code Description
Feature-type grouping		Ice-movement indicators
Feature-type GIS control field	1491093	Dispersal train margin (confidence approximate; left side)
Feature type	¹ 149	Dispersal train margin
Feature-type subset	¹ 187	Left side
Feature-type status	¹ 293	Not applicable
Feature-type direction (sense)	¹ 299	Known
Feature-type environment	¹ 310	Not applicable
Feature-type generation	Range	1 to 5 (1=oldest)
Feature-type location confidence	¹ 285	Approximate
Feature-type true-ground length	¹ 315	Accurate
Feature-type geological event name example		e.g. X Glaciation

Feature-type GSC symbol code	¹ 3.08.01.043	Dispersal train margin (confidence approximate; left side)
Feature-type notes on symbol usage		<p>Margin of dispersal train; teeth toward dispersal train axis, steep side of teeth face down ice.</p> <p>The legend symbol will show the two sides of the dispersal train.</p> <p>Line digitized using right side rule.</p> <p>Ornamentations point toward dispersal train axis.</p>

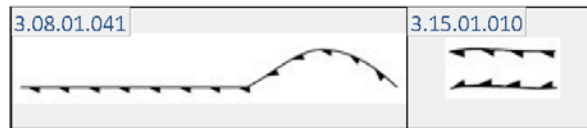
GEM_LINES: Linear Features
Dispersal train margin (confidence approximate; right side)



Field Name	Code	Code Description
Feature-type grouping		Ice-movement indicators
Feature-type GIS control field	1491094	Dispersal train margin (confidence approximate; right side)
Feature type	¹ 149	Dispersal train margin
Feature-type subset	¹ 188	Right side
Feature-type status	¹ 293	Not applicable
Feature-type direction (sense)	¹ 299	Known
Feature-type environment	¹ 310	Not applicable
Feature-type generation	Range	1 to 5 (1=oldest)
Feature-type location confidence	¹ 285	Approximate
Feature-type true-ground length	¹ 315	Accurate
Feature-type geological event name example		e.g. X Glaciation
Feature-type GSC symbol code	¹ 3.08.01.044	Dispersal train margin (confidence approximate; right side)
Feature-type notes on symbol usage		<p>Margin of dispersal train; teeth toward dispersal train axis, steep side of teeth face down ice.</p> <p>Line digitized using right side rule.</p> <p>The legend symbol will show the two sides of the dispersal train.</p> <p>Ornamentations point toward dispersal train axis.</p>

GEM_LINES: Linear Features

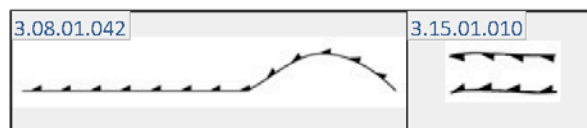
Dispersal train margin (confidence defined; left side)



Field Name	Code	Code Description
Feature-type grouping		Ice-movement indicators
Feature-type GIS control field	1491095	Dispersal train margin (confidence defined; left side)
Feature type	¹ 149	Dispersal train margin
Feature-type subset	¹ 187	Left side
Feature-type status	¹ 293	Not applicable
Feature-type direction (sense)	¹ 299	Known
Feature-type environment	¹ 310	Not applicable
Feature-type generation	Range	1 to 5 (1=oldest)
Feature-type location confidence	¹ 287	Defined
Feature-type true-ground length	¹ 315	Accurate
Feature-type geological event name example		e.g. X Glaciation
Feature-type GSC symbol code	¹ 3.08.01.041	Dispersal train margin (confidence defined; left side)
Feature-type notes on symbol usage		<p>Margin of dispersal train; teeth toward dispersal train axis, steep side of teeth face down ice.</p> <p>Line digitized using right side rule.</p> <p>Ornamentations point toward dispersal train axis.</p> <p>The legend symbol will show the two sides of the dispersal train.</p>

GEM_LINES: Linear Features

Dispersal train margin (confidence defined; right side)



Field Name	Code	Code Description
Feature-type grouping		Ice-movement indicators
Feature-type GIS control field	1491096	Dispersal train margin (confidence defined; right side)
Feature type	¹ 149	Dispersal train margin

Feature-type subset	¹ 188	Right side
Feature-type status	¹ 293	Not applicable
Feature-type direction (sense)	¹ 299	Known
Feature-type environment	¹ 310	Not applicable
Feature-type generation	Range	1 to 5 (1=oldest)
Feature-type location confidence	¹ 287	Defined
Feature-type true-ground length	¹ 315	Accurate
Feature-type geological event name example		e.g. X Glaciation
Feature-type GSC symbol code	¹ 3.08.01.042	Dispersal train margin (confidence defined; right side)
Feature-type notes on symbol usage		Ornamentations point toward dispersal train axis. Line digitized using right side rule. Margin of dispersal train; teeth toward dispersal train axis, steep side of teeth face down ice. The legend symbol will show the two sides of the dispersal train.

GEM_LINES: Linear Features

Sediment transport direction (direction known)



Field Name	Code	Code Description
Feature-type grouping		Eolian features Miscellaneous features
Feature-type GIS control field	5031002 5031053	Sediment transport direction (all) Sediment transport direction (direction known)
Feature type	¹ 503	Sediment transport direction
Feature-type subset	¹ 260	Not applicable
Feature-type status	¹ 293	Not applicable
Feature-type direction (sense)	¹ 299	Known
Feature-type environment	310 ¹ 314 116 319 118 305	Not applicable Unspecified Glaciofluvial Glacial Eolian Fluvial

Feature-type generation	Range	Not applicable
Feature-type location confidence	¹ 288	Not applicable
Feature-type true-ground length	¹ 316	Not applicable
Feature-type GSC symbol code	3.05.01.004	Sediment transport direction (all)
	¹ 3.14.01.021	Sediment transport direction (direction known)
Feature-type notes on symbol usage		Arrow indicates direction of transport. Line digitized using right side rule.

GEM_LINES: Linear Features

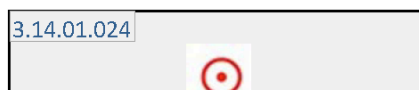
Sediment transport direction (direction unknown or unspecified)



Field Name	Code	Code Description
Feature-type grouping		Miscellaneous features
Feature-type GIS control field	5031055	Sediment transport direction (direction unknown or unspecified)
Feature type	¹ 503	Sediment transport direction
Feature-type subset	¹ 260	Not applicable
Feature-type status	¹ 293	Not applicable
Feature-type direction (sense)	302	Unknown
	¹ 304	Unspecified
Feature-type environment	116	Glaciofluvial
	305	Fluvial
	118	Eolian
	¹ 314	Unspecified
	319	Glacial
Feature-type generation	Range	Not applicable
Feature-type location confidence	¹ 288	Not applicable
Feature-type true-ground length	¹ 316	Not applicable
Feature-type GSC symbol code	¹ 3.14.01.022	Sediment transport direction (direction unknown or unspecified)
Feature-type notes on symbol usage		Line digitized using right side rule. Arrow indicates direction of transport.

GEM_POINTS: Small Features

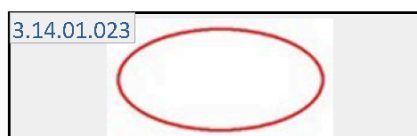
Annular depression (all)



Field Name	Code	Code Description
------------	------	------------------

Field Name	Code	Code Description
Feature-type grouping		Miscellaneous features
Feature-type GIS control field	4101002	Annular depression (all)
Feature type	¹ 410	Annular depression
Feature-type subset	¹ 260	Not applicable
Feature-type status	¹ 293	Not applicable
Feature-type direction (sense)	¹ 300	Not applicable
Feature-type environment	¹ 310	Not applicable
Feature-type direction and/or orientation (azimuth)	Range	Not applicable
Feature-type generation	Range	Not applicable
Feature-type GSC symbol code	¹ 3.14.01.024	Annular depression (all)
Feature-type notes on symbol usage		No rotation. Location based at midpoint. Feature too small to draw to scale.

GEM_POLYS: Overlay Polygons
Annular depression (all)



Field Name	Code	Code Description
Feature-type grouping		Miscellaneous features
Feature-type GIS control field	1011002	Annular depression (all)
Feature type	¹ 101	Annular depression
Feature-type subset	¹ 260	Not applicable
Feature-type status	¹ 293	Not applicable
Feature-type GSC symbol code	¹ 3.14.01.023	Annular depression (all)

GEO_POLYS: Map units
Tp: Glacial sediments - Till plain (unspecified)



Field Name	Code	Code Description
Map-unit GIS control field	6961084	Tp: Glacial sediments - Till plain (unspecified)
Map-unit feature type	¹ 696	Glacial sediments - Till plain
Map-unit subcategory	¹ 896	Unspecified
Map-unit label	¹ Tp	Tp
Map-unit GSC symbol code	¹ 3.01.10.439	Tp: Glacial sediments - Till plain (all)

GEO_POLYS: Map units

**Tp1: Glacial sediments - Till plain
(carbonate/calcareous)**



Field Name	Code	Code Description
Map-unit GIS control field	6961089	Tp1: Glacial sediments - Till plain (carbonate/calcareous)
Map-unit feature type	¹ 696	Glacial sediments - Till plain
Map-unit subcategory	¹ 901	Carbonate/calcareous
Map-unit label	¹ Tp1	Tp1
Map-unit GSC symbol code	¹ 3.01.10.439	Tp: Glacial sediments - Till plain (all)

Table 2: Map-unit polygons (GEO_POLYS)

Notes:

* Denotes the default value for the field.

Field names are described in Table 9.

Only items that have changed appear in the columns of version 2.1.0. New (in blue) and revised (in red) items are highlighted in the table.

Map-unit polygons >> Glacial sediments - Till plain (unspecified)

Map-unit polygons >> Glacial sediments - Till plain (Carbonate/calcareous)					
Version 2.1.0			Version 2.2.0		
Field Name	Domain Code	Description	Field Name	Domain Code	Description
			Map-unit GIS control field	6961084	Tp: Glacial sediments - Till plain (unspecified)
			Map unit label	* Tp	Tp: Tp
			Map-unit type	* 696	Glacial sediments
			Map-unit subcategory	* 896	Unspecified
				.	Complex
			Map-unit relation	* _	None
				/	Stratigraphic
			Map-unit geological event		See Table 8
				520	Land
				524	Snow and ice, permanent
			Map-unit hydrology intersection	* 525	Unspecified
				522	Waterbody, intermittent
				521	Waterbody, permanent
				523	Waterbody, unknown
			Map-unit GSC symbol code	* 3.01.10.439	Tp: Glacial sediments - Till plain (All)
			Map-unit colour values		RGB: 25 140 25 CMYK%: 89 20 100 9 HEX: 19 8C 19
			Map-unit notes on symbol usage		None

Map-unit polygons >> Glacial sediments - Till plain (Carbonate/calcareous)

Map-unit polygons >> Glacial sediments - Till plain (Carbonate/calcareous)					
Version 2.1.0			Version 2.2.0		
Field Name	Domain Code	Description	Field Name	Domain Code	Description
			Map-unit GIS control field	6961089	Tp1: Glacial sediments - Till plain (Carbonate/calcareous)
			Map unit label	* Tp1	Tp1: Tp1
			Map-unit type	* 696	Glacial sediments
			Map-unit subcategory	* 901	Carbonate/calcareous
				.	Complex
			Map-unit relation	* _	None
				/	Stratigraphic
			Map-unit geological event		See Table 8
				520	Land
				524	Snow and ice, permanent
			Map-unit hydrology intersection	* 525	Unspecified
				522	Waterbody, intermittent
				521	Waterbody, permanent
				523	Waterbody, unknown
			Map-unit GSC symbol code	* 3.01.10.439	Tp: Glacial sediments - Till plain (All)
			Map-unit colour values		RGB: 25 140 25 CMYK%: 89 20 100 9 HEX: 19 8C 19
			Map-unit notes on symbol usage		None

Table 3: Map-unit boundaries

Notes:

* Denotes the default value for the field.

Field names are described in Table 9.

Only items that have changed appear in the columns of version 2.1.0. New (in blue) and revised (in red) items are highlighted in the table.

No changes for Map-unit boundaries

Table 4: Geomorphological overlay polygons (GEM_POLYS)

Notes:

* Denotes the default value for the field.

Field names are described in Table 9.

Only items that have changed appear in the columns of version 2.1.0. New (in blue) and revised (in red) items are highlighted in the table.

Geomorphological overlay polygons >> Miscellaneous >> Annular depression (large)


Geomorphological overlay polygons >> Permafrost and periglacial features >> Nivation hollow					
Version 2.0.2			Version 2.1.0		
Field Name	Domain Code	Description	Field Name	Domain Code	Description
			Feature-type grouping		Miscellaneous
			Feature-type GIS control field	1011002	Annular depression (all)
			Feature type	* 101	Annular depression
			Feature-type subset	* 260	Not applicable
			Feature-type status	* 293	Not applicable
			Feature-type date of occurrence	Free text	Not applicable
			Feature-type geological event	Free text	Not applicable
			Feature-type GSC symbol code	* 3.14.01.023	Annular depression (all)
			Feature-type symbology representation		

Table 5: Geomorphological lines (GEM_LINES)

Notes:

* Denotes the default value for the field.


Field names are described in Table 9.

Only items that have changed appear in the columns of version 2.1.0. New (in blue) and revised (in red) items are highlighted in the table.


Geomorphological lines >> Miscellaneous features >> Sediment transport direction >> Direction unknown or unspecified

Geomorphological lines >> Miscellaneous features >> Sediment transport direction >> Direction unknown or unspecified					
Version 2.1.0			Version 2.2.0		
Field Name	Domain Code	Description	Field Name	Domain Code	Description
			Feature-type grouping		Miscellaneous features
			Feature-type GIS control field	5031055	Sediment transport direction (Unknown or unspecified)
			Feature type	* 503	Sediment transport direction
			Feature-type subset	260	Not applicable
			Feature-type status	* 293	Not applicable
			Feature-type direction (sense)	302	Unknown
				* 304	Unspecified
			Feature-type environment	116	Glaciofluvial
				305	Fluvial
				118	Eolian
				* 314	Unspecified
				319	Glacial
			Feature-type location confidence	* 288	Not applicable
			Feature-type true-ground length	* 316	Not applicable
			Feature-type generation	Range	Not applicable
			Feature-type date of occurrence	Free text	Not applicable
			Feature-type geological event	Free text	e.g. X Glaciation
			Feature-type GSC symbol code	* 3.14.01.022	Sediment transport direction (Unknown or unspecified)


Geomorphological lines >> Miscellaneous features >> Sediment transport direction >> Direction unknown or unspecified

Version 2.1.0			Version 2.2.0		
Field Name	Domain Code	Description	Field Name	Domain Code	Description
			Feature-type symbology representation		
			Feature-type symbology digitizing specifications		Line digitized using right side rule.
			Feature-type notes on symbol usage		Arrow indicates direction of transport.


Geomorphological lines >> Miscellaneous features >> Sediment transport direction >> Direction known

Geomorphological lines >> Miscellaneous features >> Sediment transport direction >> Direction known					
Version 2.1.0			Version 2.2.0		
Field Name	Domain Code	Description	Field Name	Domain Code	Description
			Feature-type grouping		Miscellaneous features
			Feature-type GIS control field	5031053	Sediment transport direction (Known)
			Feature type	* 503	Sediment transport direction
			Feature-type subset	260	Not applicable
			Feature-type status	* 293	Not applicable
			Feature-type direction (sense)	302	Unknown
				* 304	Unspecified
			Feature-type environment	116	Glaciofluvial
				305	Fluvial
				118	Eolian
				* 314	Unspecified
				319	Glacial
			Feature-type location confidence	* 288	Not applicable
			Feature-type true-ground length	* 316	Not applicable
			Feature-type generation	Range	Not applicable
			Feature-type date of occurrence	Free text	Not applicable
			Feature-type geological event	Free text	e.g. X Glaciation
			Feature-type GSC symbol code	* 3.14.01.021	Sediment transport direction (Known)
			Feature-type symbology representation		
			Feature-type symbology digitizing specifications		Line digitized using right side rule.
			Feature-type notes on symbol usage		Arrow indicates direction of transport.


Geomorphological lines >> Ice-movement indicators >> Margin of dispersal train >> Left side >> Approximate

Geomorphological lines >> Ice-movement indicators >> Margin of dispersal train >> Left side >> Approximate					
Version 2.1.0			Version 2.2.0		
Field Name	Domain Code	Description	Field Name	Domain Code	Description
			Feature-type grouping		Ice-movement indicators
			Feature-type GIS control field	1491095	Dispersal train margin (Confidence approximate; left side)
			Feature type	* 149	Dispersal train margin
			Feature-type subset	187	Left side
			Feature-type status	* 293	Not applicable
			Feature-type direction (sense)	299	Known
			Feature-type environment	310	Not applicable
			Feature-type location confidence	* 285	Approximate
			Feature-type true-ground length	* 315	Accurate
			Feature-type generation	Range	Range 1 to 5 (1=oldest)
			Feature-type date of occurrence	Free text	Not applicable
			Feature-type geological event	Free text	e.g. X Glaciation
			Feature-type GSC symbol code	* 3.08.01.043	Dispersal train margin (Confidence approximate; left side)
			Feature-type symbology representation		
			Feature-type symbology digitizing specifications	1302	Line digitized using right side rule.
			Feature-type notes on symbol usage	1309	Margin of dispersal train; teeth toward dispersal train axis, steep side of teeth face down ice.
		1307		Ornamentations point toward dispersal train axis.	
		1308		The legend symbol will show the two sides of the dispersal train.	

Geomorphological lines >> Ice-movement indicators >> Margin of dispersal train >> Right side >> Approximate

Version 2.1.0			Version 2.2.0		
Field Name	Domain Code	Description	Field Name	Domain Code	Description
			Feature-type grouping		Ice-movement indicators
			Feature-type GIS control field	1491095	Dispersal train margin (Confidence approximate; right side)
			Feature type	* 149	Dispersal train margin
			Feature-type subset	188	Right side
			Feature-type status	* 293	Not applicable
			Feature-type direction (sense)	299	Known
			Feature-type environment	310	Not applicable
			Feature-type location confidence	* 285	Approximate
			Feature-type true-ground length	* 315	Accurate
			Feature-type generation	Range	Range 1 to 5 (1=oldest)
			Feature-type date of occurrence	Free text	Not applicable
			Feature-type geological event	Free text	e.g. X Glaciation
			Feature-type GSC symbol code	* 3.08.01.044	Dispersal train margin (Confidence approximate; right side)
			Feature-type symbology representation		
			Feature-type symbology digitizing specifications	1302	Line digitized using right side rule.
			Feature-type notes on symbol usage	1309	Margin of dispersal train; teeth toward dispersal train axis, steep side of teeth face down ice.
		1307		Ornamentations point toward dispersal train axis.	
		1308		The legend symbol will show the two sides of the dispersal train.	

Geomorphological lines >> Ice-movement indicators >> Margin of dispersal train >> Left side >> Defined

Version 2.1.0			Version 2.2.0		
Field Name	Domain Code	Description	Field Name	Domain Code	Description
			Feature-type grouping		Ice-movement indicators
			Feature-type GIS control field	1491095	Dispersal train margin (Confidence defined; left side)
			Feature type	* 149	Dispersal train margin
			Feature-type subset	187	Left side
			Feature-type status	* 293	Not applicable
			Feature-type direction (sense)	299	Known
			Feature-type environment	310	Not applicable
			Feature-type location confidence	* 287	Defined
			Feature-type true-ground length	* 315	Accurate
			Feature-type generation	Range	Range 1 to 5 (1=oldest)
			Feature-type date of occurrence	Free text	Not applicable
			Feature-type geological event	Free text	e.g. X Glaciation
			Feature-type GSC symbol code	* 3.08.01.041	Dispersal train margin (Confidence defined; left side)
			Feature-type symbology representation		
			Feature-type symbology digitizing specifications	1302	Line digitized using right side rule.
			Feature-type notes on symbol usage	1309	Margin of dispersal train; teeth toward dispersal train axis, steep side of teeth face down ice.
		1307		Ornamentations point toward dispersal train axis.	
		1308		The legend symbol will show the two sides of the dispersal train.	

Geomorphological lines >> Ice-movement indicators >> Margin of dispersal train >> Right side >> Defined


Version 2.1.0			Version 2.2.0		
Field Name	Domain Code	Description	Field Name	Domain Code	Description
			Feature-type grouping		Ice-movement indicators
			Feature-type GIS control field	1491095	Dispersal train margin (Confidence defined; right side)
			Feature type	* 149	Dispersal train margin
			Feature-type subset	188	Right side
			Feature-type status	* 293	Not applicable
			Feature-type direction (sense)	299	Known
			Feature-type environment	310	Not applicable
			Feature-type location confidence	* 287	Defined
			Feature-type true-ground length	* 315	Accurate
			Feature-type generation	Range	Range 1 to 5 (1=oldest)
			Feature-type date of occurrence	Free text	Not applicable
			Feature-type geological event	Free text	e.g. X Glaciation
			Feature-type GSC symbol code	* 3.08.01.042	Dispersal train margin (Confidence defined; right side)
			Feature-type symbology representation		
			Feature-type symbology digitizing specifications	1302	Line digitized using right side rule.
			Feature-type notes on symbol usage	1309	Margin of dispersal train; teeth toward dispersal train axis, steep side of teeth face down ice.
		1307		Ornamentations point toward dispersal train axis.	
		1308		The legend symbol will show the two sides of the dispersal train.	

Table 6: Geomorphological points (GEM_POINTS)

Notes:

* Denotes the default value for the field.

Field names are described in Table 9.

Only items that have changed appear in the columns of version 2.1.0. New (in blue) and revised (in red) items are highlighted in the table.

Geomorphological points >> Miscellaneous >> Annular depression (small)


Geomorphological points >> Miscellaneous >> Annular depression (small)					
Version 2.1.0			Version 2.2.0		
Field Name	Domain Code	Description	Field Name	Domain Code	Description
			Feature-type grouping		Miscellaneous
			Feature-type GIS control field	4101002	Annular depression (all)
			Feature type	* 410	Annular depression
			Feature-type subset	* 260	Not applicable
			Feature-type status	293	Not applicable
			Feature-type direction (sense)	* 194	Not applicable
			Feature-type environment	* 310	Not applicable
			Feature-type direction and/or orientation (azimuth)	Range	Not applicable
			Feature-type generation	Range	Not applicable
			Feature-type date of occurrence	Free text	Not applicable
			Feature-type geological event	Free text	Not applicable
			Feature-type GSC symbol code	* 3.14.01.024	Annular depression (all)
			Feature-type symbology representation		
			Feature-type symbology digitizing specifications		No rotation.
			Feature-type notes on symbol usage		Location based at midpoint.
					Feature too small to draw to scale.

Table 7: Geological events

Chronostratigraphy

Geological event category	Geological event name	Geological event prefix
CHRONOSTRATIGRAPHY	Neoglacial	n
	Early Holocene	eh
	Holocene	h
	Pleistocene	p
	Late Pleistocene	lp
	Middle Pleistocene	mp
	Early Pleistocene	ep
	Wisconsin(an)	w
	Late Wisconsin(an)	lw
	Pre-Late Wisconsin(an)	plw
	Middle Wisconsin(an)	mw
	Early Wisconsin(an)	ew
	Pliocene	pi
	Sangamon(ian)	s
	Quaternary	q
Middle Quaternary	mq	

Interglaciation

Geological event category	Geological event name	Geological event prefix
INTERGLACIATION	Liverpool Bay interglaciation	lbi
	Morgan Bluffs interglaciation	mb
	Cape Collinson interglaciation	cc

Ice provenance

Geological event category	Geological event name	Geological event prefix
ICE PROVENANCE	Laurentide Ice Sheet	l
	Pre-Laurentide Ice	pl
	Cordilleran Ice Sheet	c
	Hybrid montane and Laurentide Ice	hy
	Innuitian Ice	i
	Melville Ice	mi
	Keewatin Sector Ice	ks
	Labrador Sector Ice	ls

Glaciation

Geological event category	Geological event name	Geological event prefix
GLACIATION	Amundsen glaciation	a
	Amundsen glaciation (Russell stade)	ar
	Amundsen glaciation (Viscount Melville lobe)	av
	Amundsen glaciation (M'Clure stade)	am
	Amundsen glaciation (M'Clure stade, Prince of Wales lobe)	amw
	Amundsen glaciation (M'Clure stade, Thesiger lobe)	amt
	Amundsen glaciation (M'Clure stade, Prince Alfred lobe)	amp
	Thomsen glaciation	t
	Banks glaciation	b
	McConnell glaciation	m
	Buckland glaciation	bu
	Pre-Buckland	pbu
	Reid glaciation	r
	Pre-Reid glaciations	pr
	Klaza glaciation	k
	Nansen glaciation	ns

	Mountain River glaciation	mm
	Gayna River glaciation	gr
	Vashon glaciation	v
	Fraser glaciation	f
	Pre-Vashon glaciation	pv
	Illinoian glaciation	il

Glacial advance/readvance

Geological event category	Geological event name	Geological event prefix
GLACIAL ADVANCE/READVANCE	Fraser glaciation ice advance	fa
	Tutsieta Lake Phase ice advance	tl
	Kelly Lake Phase ice advance	kl
	Katherine Creek Phase ice advance	kc
	Sitidgi Stade ice advance	si
	Tuk Phase ice advance	tu
	Toker Point Stade/Member ice advance	tp
	Franklin Bay Stade ice advance	fb
	Mason River glaciation ice advance	mr
	Hadley Bay readvance	hb

Other

Geological event category	Geological event name	Geological event prefix
Other	Uncertain; Uncorrelated; Undifferentiated age	un

Table 8: Examples of map-unit information in the geodatabase

Database fields	Map-unit designators as labeled on maps				
	Ap	O.Tb	Cz2	Ev/GF	GFt
Primary unit. Map-unit GIS control field.	Ap: Alluvial sediments - Floodplain sediments (All)	O: Organic deposits - Undifferentiated deposits (All)	Cz2: Colluvial and mass- wasting deposits - Landslide deposits (Mud flow)	Ev: Eolian sediments - Veneer (All)	GFt: Glaciofluvial sediments - Terraced sediments (All)
Primary unit. Map-unit type.	Alluvial sediments - Floodplain sediments	Organic deposits - Undifferentiated deposits	Colluvial and mass-wasting deposits - Landslide deposits	Eolian sediments - Veneer	Glaciofluvial sediments - Terraced sediments
Primary unit. Map-unit subcategory.	Not applicable	Not applicable	Mud flow	Not applicable	Not applicable
Primary unit. Map-unit label.	Ap	O	Cz2	Ev	GFt
Primary unit. Map-unit geological event.		Holocene			Neoglacial
Primary unit. Map-unit GSC symbol code.	3.01.04.265	3.02.02.012	3.01.01.155	3.01.03.292	3.01.07.249
Relation between primary and secondary units	None	Complex	None	Stratigraphic	None
Secondary unit. Map-unit type.		Glacial sediments - Blanket		Glaciofluvial sediments - Undifferentiated sediments	
Secondary unit. Map-unit subcategory.		Unspecified		Not applicable	
Secondary unit. Map-unit label.		Tb		GF	
Secondary unit. Map-unit geological event.		Reid Glaciation			
Map-unit remarks.	Last flooded in 2006				

Table 9: Table header descriptions

Geomorphological feature / Entités géomorphologiques

Table	Headers	Description	Headers Fr	Description Fr
Geomorphological feature / Entités géomorphologiques	Feature-type grouping	Grouping of related geomorphological or geological elements based on origin and environment.	Groupe ment par type d'entité	Groupe ment d'entités géomorphologiques ou géologiques basé sur l'origine et l'environnement.
	Feature-type GIS control field	The GIS subtype that sets all the domains and default values for the other fields. The GIS subtype is based on the geomorphological feature classification: a combination of geometry and relevant attributes required to generate the symbol and legend description.	Champ de contrôle de l'entité cartographique SIG	Sous-type SIG qui détermine tous les domaines et valeurs implicites pour les autres champs. Le sous-type SIG est basé sur la classification de l'entité cartographique géomorphologique: une combinaison d'attributs géométriques ou autres nécessaire pour générer le symbole et la description en légende.
	Feature type	Type of geomorphological feature.	Entité cartographique	Type d'entité géomorphologique.
	Feature-type subset	Major attributes that define the feature type that do not fall into the existing attribute fields (status, sense, location confidence, and environment).	Sous-ensemble d'entités cartographiques	Attributs majeurs définissant l'élément cartographique et ne faisant pas partie des champs d'attributs existants (état, direction, confiance de la localisation, et environnement).
	Feature-type status	Processes state: 1) active, inactive or stabilized; 2: well defined or poorly defined; 3) collapsed or relict	Statut de l'entité cartographique	Etat des processus: 1) actif, inactif or stabilisé; 2: bien défini or mal défini; 3) effondré ou relique.
	Feature-type direction (sense)	Direction (sense) of the flow.	Direction de l'entité cartographique	Direction d'écoulement.
	Feature-type environment	Erosional or depositional environment.	Environnement de l'entité cartographique	Environnement érosionel ou dépositionel.
	Feature-type location confidence	Confidence in the position of the feature.	Confiance en la localisation de l'entité cartographique	Confiance dans le positionnement de l'entité cartographique.
	Feature-type true-ground length	Is the feature's length drawn to scale?	Longueur réelle de l'entité cartographique	Est-ce que la longueur de l'entité cartographique est dessinée à l'échelle?
	Feature-type hydrology	This field is calculated by intersecting the hydrological polygons with the map unit boundaries	Intersection hydrologique de	Ce champ est déterminé par l'intersection des polygones hydrologiques avec les limites d'unités

Table	Headers	Description	Headers Fr	Description Fr
	intersection	and polygons.	l'entité cartographique	cartographiques et les polygones.
	Feature type is boundary	Indicates if this line is part of a map unit boundary.	L'entité cartographique est une limite	Indique si cette ligne fait partie de la limite d'une unité cartographique.
	Feature-type direction and/or orientation (azimuth)	Direction (azimuth) (0 to 359 degrees) of the feature.	Direction et/ou orientation (azimut) de l'entité cartographique	Direction (azimut) (0 à 359 degrés) de l'entité cartographique.
	Feature-type generation	Relative age between crossing features (1 to 5; 1 is oldest).	Succession d'entités cartographique	Âge relatif des entités cartographiques se recoupant (en recoupement).
	Feature-type date of occurrence	Date of occurrence of the geomorphological process.	Date de l'événement de l'entité cartographique	Date de l'événement du processus géomorphologique.
	Feature-type geological event	Geological event	Événement géologique relié à l'entité cartographique	Événement géologique.
	Feature-type GSC symbol code	The GSC symbol code refers to the specifically to the ArcGIS™ styleset called GSC_SymbolStandard.style. The GSC symbol code (point, line, or pattern) is based on the geomorphological feature classification: a combination of geometry and relevant attributes required to generate the symbol and legend description.	Code CGC du symbole de l'entité cartographique	Le code CGC du symbole se réfère spécifiquement au style ArcGIS™ appelé style.SymboleStandard_CGC. Le code des symboles de la CGC (point, ligne, patron) est basé sur la classification de l'entité géomorphologique : une combinaison d'attributs géométriques ou autres nécessaires pour générer le symbole et la description en légende.
	Feature-type symbology representation	Cartographic representation of a feature.	Représentation symbologique de l'entité.	Représentation cartographique d'une entité.
	Feature-type symbology digitizing specifications	Specific instructions for digitizing.	Spécifications de numérisation de représentation	Instructions spécifiques pour la numérisation.

Table	Headers	Description	Headers Fr	Description Fr
			symbolique de l'entité cartographique	
	Feature-type notes on symbol usage	General notes on the feature-type usage.	Notes d'usage pour la représentation symbolique de l'entité cartographique	Notes générales pour l'usage de cette entité cartographique.
	Feature-type legend GSC Symbol code	Feature-type legend GSC Symbol code (if different from the symbol used in the map).	Code CGC du symbole de légende de l'entité cartographique	Code CGC du symbole de légende de l'entité cartographique (s'il diffère du symbole sur la carte).
	Feature-type legend symbology representation	Cartographic representation in the legend (if different from the symbol in the map).	Représentation symbolique de l'entité cartographique dans la légende	Représentation symbolique dans la légende (si elle diffère du symbole sur la carte).
	Feature Type GanFeld Form	The Ganfeld form (GSC in-house software used for field data capture) in which the information is captured.	Formulaire GanFeld de l'entité cartographique	Le formulaire GanFeld (logiciel interne de la CGC pour la capture des données de terrain) dans lequel l'information est saisie.

Map-unit polygon / Unités cartographiques - polygone

Table	Headers	Description	Headers Fr	Description Fr
Map-unit polygon / Unités cartographiques - polygone	Map-unit GIS control field	The GIS subtype that sets all the domains and default values for the fields that describe the primary map-unit designator. The GIS subtype is based on the primary map-unit classification: map-unit label, genesis, category, and subcategory	Unité cartographique - champ de contrôlé nécessaire au SIG	Sous-type dans le SIG qui détermine tous les domaines et les valeurs implicites pour les champs qui décrivent le désignatif de l'unité cartographique première. Le sous-type dans le SIG est basé sur la classification de l'unité cartographique première: sigle de l'unité cartographique, genèse, catégorie et sous-catégorie
	Map unit label	Map unit 1: label; Map unit 2: label	Unité cartographique - étiquette	Unité cartographique 1: sigle; unité cartographique 2: sigle
	Map-unit type	Map unit 1: feature type (dominant genesis /category); Map unit 2: feature type (secondary genesis /category)	Unité cartographique - type	Unité cartographique 1: sigle; unité cartographique 2: sigle
	Map-unit subcategory	Map unit 1 subcategory; Map unit 2 subcategory	Unité cartographique - sous-catégorie	Sous-catégorie de l'unité cartographique 1; sous-catégorie de l'unité cartographique 2
	Map-unit relation	Relation between primary and secondary map unit	Unité cartographique - relation	Relation entre l'unité cartographique primaire et secondaire
	Map-unit geological event	Map unit 1: Geological event name; Map unit 2: Geological event name	Unité cartographique - événement géologique	Unité cartographique 1: nom de l'événement géologique; unité cartographique 2: nom de l'événement géologique
	Map-unit hydrology intersection	This field is calculated by intersecting the hydrological polygons with the map unit boundaries and polygons.	Unité cartographique - intersection avec l'hydrologie	Ce champ est déterminé par l'intersection des polygones hydrologiques avec les limites d'unités cartographiques et polygones.
	Map-unit GSC symbol code	The GSC symbol code refers specifically to the ArcGIS™ styleset called GSC_SymbolStandard.style. The GSC symbol colour or pattern code is based on the primary map-unit classification: map-unit label, genesis, category, and subcategory.	Unité cartographique - code du symbole de la CgC	Le code du symbole de la CgC fait référence à l'ensemble des symboles appelé GSC-SymbolStandard.style dans ArcGIS™. Le code de couleur ou de patron de la CgC est basé sur la classification de l'unité cartographique première: sigle de l'unité cartographique, genèse, catégorie et sous-catégorie.

Table	Headers	Description	Headers Fr	Description Fr
	Map-unit colour values	Map-unit primary designator color	Unité cartographique - code de couleur	Couleur de l'unité cartographique première
	Map-unit symbology representation	Map-unit primary designator pattern	Unité cartographique - représentation symbologique	Patron de l'unité cartographique première
	Map-unit symbology digitizing specifications	Specific instructions for digitizing	Unité cartographique - spécifications de numérisation du symbole	Spécifications pour la numérisation de l'unité cartographique
	Map-unit notes on symbol usage	General notes on the feature-type usage	Unité cartographique - notes sur l'utilisation du symbole	Notes sur l'utilisation de l'unité cartographique

Geological event / Événement géologique

Table	Headers	Description	Headers Fr	Description Fr
Geological event / Événement géologique	Geological event category	Geological event category (chronostratigraphy, ice provenance, glacial and nonglacial intervals, ice readvance)	Événement géologique - catégorie	Catégorie de l'événement géologique (chronostratigraphie, provenance du glacier, intervalle glaciaire et non glaciaire, réavancée glaciaire)
	Geological event name	Geological event name	Événement géologique - nom	Nom de l'évènement géologique
	Geological event prefix	Geological event map-unit prefix	Événement géologique - préfix	Préfix du sigle désignant l'événement géologique