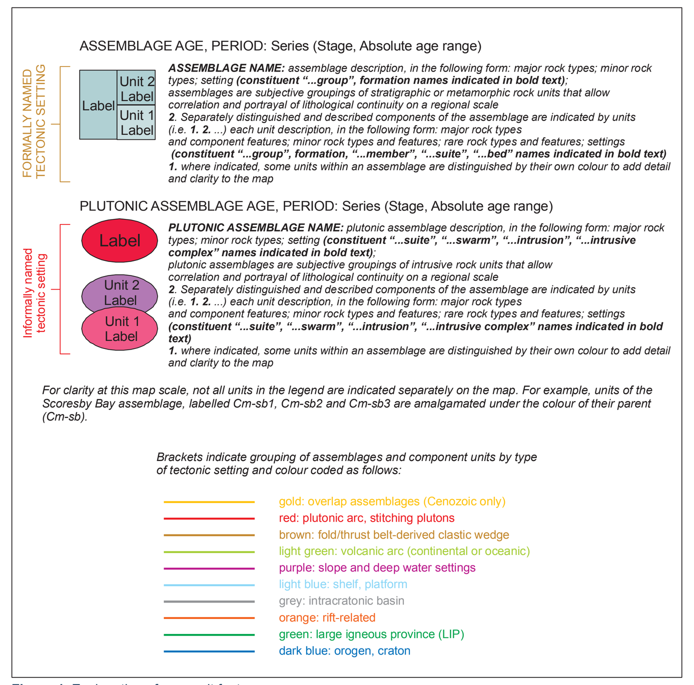
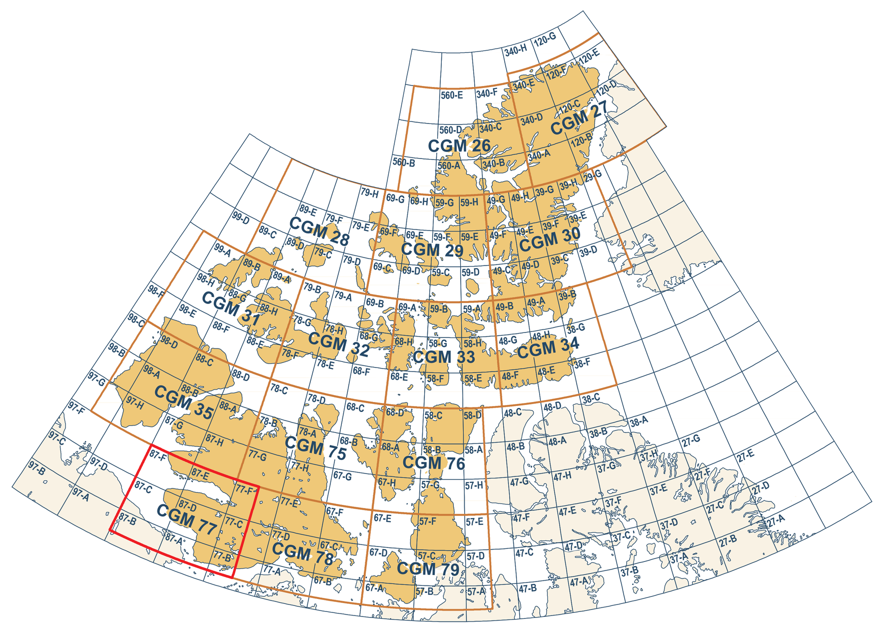


Figure 1. Explanation of map unit features.



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

Abstract

This map and the related geodatabase illustrate the bedrock geology of southwestern Victoria Island. Major features of the area include Meso- and Neoproterozoic strata of Amundsen Basin, diabase sills related to the Franklin Large Igneous Province (ca. 723 Ma), and generally flat-lying Cambrian to Silurian strata of Arctic Platform.

Résumé

Cette carte et la géodatabase qui s'y rapporte documentent la géologie du substratum rocheux dans le sud-ouest de l'île Victoria. Les principales entités géologiques de la région comprennent des strates mésoprotérozoïques et néoprotérozoïques du bassin d'Amundsen, des filons-couches de diabase apparentés à la grande province magmatique de Franklin (env. 723 Ma) et des strates généralement horizontales d'âge cambrien à silurien de la Plate-forme de l'Arctique.

Cover illustration
Flat-lying Lower Paleozoic strata, Prince Albert Sound area, southwestern Victoria Island, Nunavut. Photograph by Rob Rainbird. 2013-074

Catalogue No. M183-1/77-2013E-PDF
ISBN 978-1-100-22354-4
doi:10.4095/292812

© Her Majesty the Queen in Right of Canada 2013

Natural Resources Canada Ressources naturelles du Canada

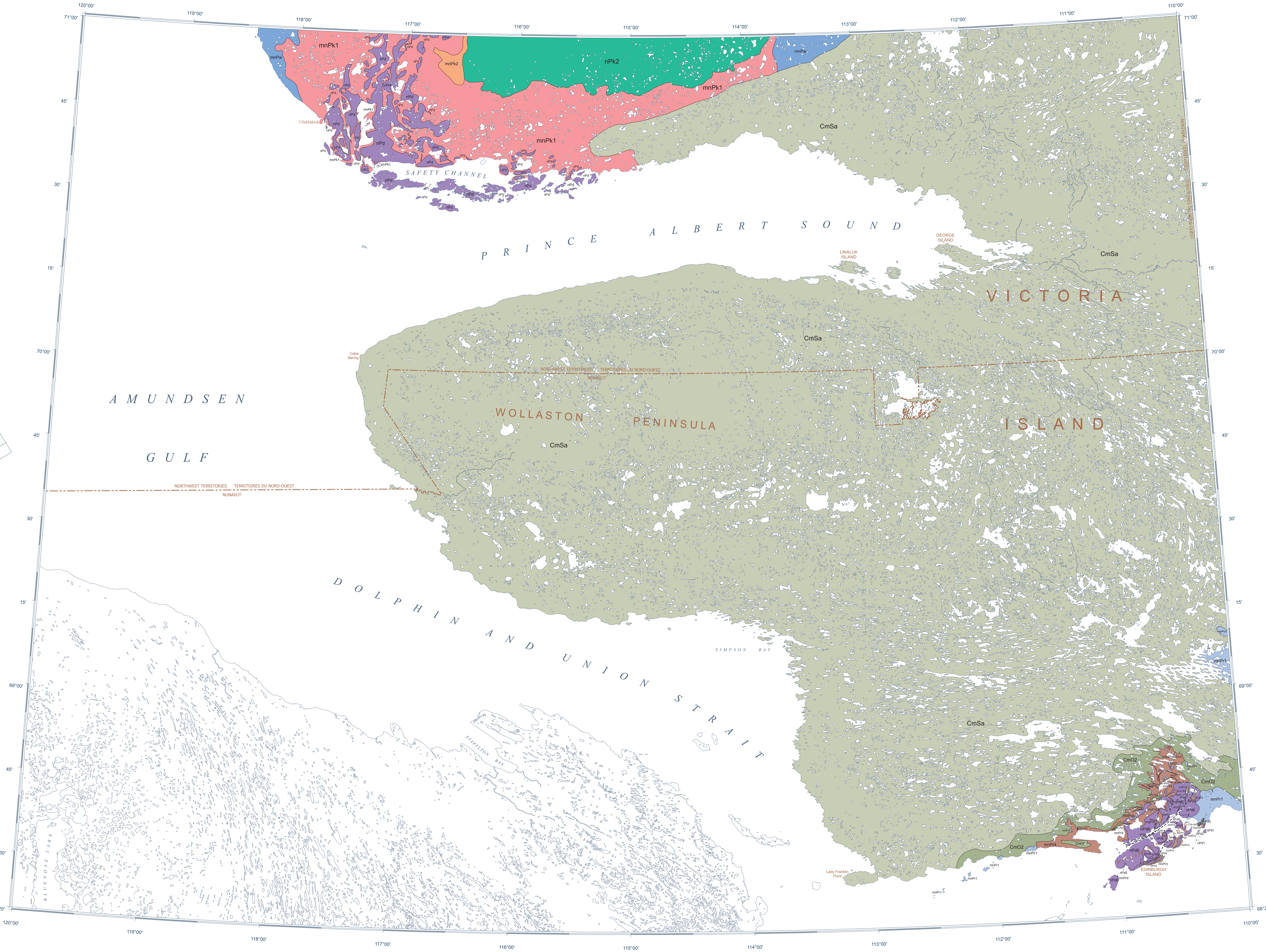
CANADIAN GEOSCIENCE MAP 77

GEOLOGY

TECTONIC ASSEMBLAGE MAP OF THE ULUKHAKTOK AREA

southwestern Victoria Island, Nunavut–Northwest Territories

1:500 000



CAMBRIAN TO SILURIAN

LATE CAMBRIAN TO LUDLOW

ARCTIC PLATFORM

CmSa — **ARCTIC PLATFORM:** dolostone, dolomitic limestone, limestone; minor sandstone, shale, intraclast conglomerate, breccia; nearshore and intertidal to supratidal; mostly restricted (**Turner Cliffs, Ship Point, Irene Bay, Thumb Mountain, Allen Bay, Cape Storm**).

CAMBRIAN AND ORDOVICIAN

LATE CAMBRIAN (Furongian) TO EARLY ORDOVICIAN (Tremadoc)

CmO2 — **TURNER CLIFFS:** dolostone, limestone, intraclast conglomerate; minor shale, sandstone, gypsum; local bioherms; peritidal grading to subtidal shelf.
2. Dolostone, green, grey to buff, laminated, thin- to medium-bedded, stromatolitic; sandstone, grey, white, red brown; carbonate intraclast breccia, conglomerate; nearshore to restricted shallow marine (**Turner Cliffs, lower member**).

CAMBRIAN

EARLY AND MIDDLE CAMBRIAN (Series 2, 3)

Cm-rb2 — **RABBIT POINT:** limestone, dolostone; sandstone; fluvial and nearshore grading to shallow subtidal.
2. Sandstone, thick-bedded, planar and trough cross-stratified, medium- to coarse-grained, grey, yellow, red weathering; sandstone, very fine- to fine-grained, thin-bedded, ripples, desiccation cracks, trace fossils; fluvial and nearshore settings (**Old Fort Island**).

NEOPROTEROZOIC

CRYOGENIAN (723 to 718 Ma)

FRANKLIN LARGE IGNEOUS PROVINCE

nPd — **FRANKLIN plutonic assemblage:** Diabase, mostly high titanium tholeiite, olivine-bearing, brown to black, subophitic; plagioclase often saussuritized, olivine replaced by carbonate; local ultramafic rock; LIP intrusives, olivine tholeiite association (**Franklin and Thule swarms**).
7. Gabbro, coarse-grained; minor pegmatite; scattered small sills and other intrusive bodies lying above six regionally mapped sills in the Duke of York Inlier area.
6. Gabbro, brown weathering, medium- to coarse-grained, ophitic texture, columnar jointed; minor granophyre and pegmatite; highest of six mapped sills in the Duke of York Inlier area.
5. Olivine gabbro, poikilitic, dark green, fine- to coarse-grained; pegmatitic gabbro; local pyritic gossan; fifth from the base of six sills in the Duke of York Inlier area.
4. Olivine gabbro, medium- to coarse-grained, in part poikilitic; clinopyroxene oikocrysts; amphibole seams; fourth from the base of six sills in the Duke of York Inlier area; 20 to 30 m thick.
3. Gabbro, third from the base of six sills in the Duke of York Inlier area, southern Victoria Island; 25 m thick, prominentaly exposed upper chill margin.
2. Gabbro, second from the base of six sills in the Duke of York Inlier area.
1. Gabbro, lowest of six sills in the Duke of York Inlier area, southern Victoria Island.

nPk2 — **NATKUSIAK:** basalt, minor volcaniclastic rock, agglomerate; subaerial continental tholeiite flows phreatomagmatic and volcaniclastic units.
2. Basalt flows, massive and amygdaloidal, to 30 m thick; minor volcaniclastic units. Common native copper and copper sulphides; subaerial continental tholeiite flows and phreatomagmatic units (**Natkusiak**).

MESOPROTEROZOIC AND NEOPROTEROZOIC

STENIAN TO CRYOGENIAN (1033 to 723 Ma)

AMUNDSEN BASIN

mnPk2, mnPk1 — **KILIAN:** Limestone, dolostone, gypsum/anhydrite; lesser quartz arenite, redbeds; minor mudstone, arenaceous and argillaceous carbonate; cyclically subtidal to supratidal (**Kilian**), grading to fluvial braidplain and playas (**Kuujjua**).
2. Coarse grained quartz arenite, tabular cross-bedded; minor calcareous siltstone, fine sandstone; fluvial braidplain with abandoned channel playas (**Kuujjua**).
1. Cyclically interbedded gypsum/anhydrite and red to tan limestone and dolostone, argillaceous and arenceous carbonate; often stromatolitic; cyclically shallow subtidal to intertidal and supratidal (**Kilian**).

mnPw — **WYNNIATT:** Cyclic dolosiltite, dololutite, intraclast breccia, sandstone, black mudstone; minor quartz arenite, microbialite limestone; common desiccation cracks, stromolitic bioherms; shallow subtidal with reef complex and cyclical intertidal facies (**Wynniatt**).

mnPr5, mnPr4, mnPr3, mnPr1 — **RAE:** dolostone, dolosiltite, quartz arenite, minor ilithic arenite, intraclast conglomerate; clastic shelf, offshore platform and fluvial-deltaic.
5. Dolostone, sideritic to ankeritic, cream to orange brown, columnar and digitate stromatolites; minor dololutite and wavy dolosiltite; marine platform below wave base (**Aok**).
4. Siltstone, red, green; quartz arenite, fine- to medium-grained, white to pink, planar cross-stratified; minor, shale, pyritic, black; glauconitic sandstone, hummocky cross-stratified; marine prodeltaic, deltaic, fluvial (**Nelson Head**).
3. Dolostone, stromatolitic; dolositite, dolarenite; dolostone intraclast conglomerate, minor chert; shallow subtidal to supratidal (**Mikkelsen Islands**).
1. Dolostone, dolosiltite, quartz arenite, minor ilithic arenite, intraclast conglomerate; clastic shelf, offshore platform and fluvial-deltaic (**Rae group**).

Contacts
Geological boundary: defined or approximate

Faults
Fault: assumed

REFERENCES

Christie, R.L., Fyles, J.G., Thorsteinsson, R., and Tozer, E.T., 1963. Geology Banks, Victoria and Stefansson Islands, District of Franklin; Geological Survey of Canada, Map 1135A, scale 1:1 013 760.

Cook, D.G. and MacLean, B.C., 2004. Subsurface Proterozoic stratigraphy and tectonics of the western plains of the Northwest Territories; Geological Survey of Canada, Bulletin 575, 91p.

Dewing, K. and Nowlan, G.S., 2004. Correlation chart of Cambrian and Ordovician stratigraphy, Arctic Islands, Nunavut, Canada; Geological Survey of Canada, Open File 1837, 1 sheet.

Hulbert, L. J., Rainbird, R.H., Jefferson, C.W., and Friske, P., 2005. Map of mafic and ultramafic bodies related to the Franklin magmatic event, Minto Inlier, Victoria Island; Geological Survey of Canada, Open File 4928, scale 1:500 000.

Okulitch, A.V., 1991. Geology of the Canadian Arctic Archipelago, Northwest Territories and North Greenland; Geological Survey of Canada, Map 1595A, scale 1:2000 000.

Okulitch, A.V., 2000. Geology, Horton River, Northwest Territories–Nunavut; Geological Survey of Canada, Map NR-9/10/11/12-G, Open File 3845, scale 1:1,000 000.

Rainbird, R.H., 1998. Bedrock and surficial geology, Wynniatt Bay, District of Franklin, Northwest Territories; Geological Survey of Canada, Open File 3671, scale 1:125 000.

Rainbird, R.H., Jefferson, C.W. and Young, G.M., 1996. The early Neoproterozoic sedimentary Succession B of northwestern Laurentia: Correlations and paleogeographic significance; Geological Society of America Bulletin, 108, 454–470.

Rainbird, R.H., LeCheminant, A.N. and Lawyer, I., 1997. Geology, Duke of York Inlier, Victoria Island, Northwest Territories; Geological Survey of Canada, Open File 3304, scale 1:100 000.

Rainbird, R.H., Jefferson, C.W., Hildebrand, R.S., and Worth, J.K., 1994. The Shaler Supergroup and revision of Neoproterozoic stratigraphy in Amundsen Basin, Northwest Territories; Geological Survey of Canada, Current Research 1994-C, 61–70.

Thorsteinsson, R. and Tozer, E.T., 1962. Banks, Victoria, and Stefansson Islands, Arctic Archipelago; Geological Survey of Canada, Memoir 330; 85 pages.

Recommended citation
Rainbird, R.H., Christie, R.L., Harrison, J.C., and Ford, A., 2013. Geology, Tectonic assemblage map of the Ulukhaktok area, southwestern Victoria Island, Nunavut–Northwest Territories; Geological Survey of Canada, Canadian Geoscience Map 77 (preliminary), scale 1:500 000. doi:10.4095/292812

ess.nrcan.gc.ca

Canadian Geoscience Maps

Canada

Authors: R.H. Rainbird, R.L. Christie, J.C. Harrison, and A. Ford

Geological compilation by J.C. Harrison

Source map geology (senior authors) by R.L. Christie and R.H. Rainbird

GIS development by T. Lynds

Spatial data capture by A. Ford

Cartography by M.J. Baldock

Critical review by K. Dewing

Initiative of the Geological Survey of Canada, conducted under the auspices of the Tri-Territorial Project as part of Natural Resources Canada's Geo-mapping for Energy and Minerals (GEM) program.

GEOLOGY

TECTONIC ASSEMBLAGE MAP OF THE ULUKHAKTOK AREA

southwestern Victoria Island, Nunavut–Northwest Territories

1:500 000

10 0 10 20 30 40 km

Map projection Lambert Conformal Conic, standard parallels 68°54′N and 70°34′N. North American Datum 1983

Base map at the scale of 1:250 000 from Natural Resources Canada, with modifications.

Proximity to the North Magnetic Pole causes the magnetic compass to be erratic in this area.
Mean magnetic declination 2013, 20°02′E, decreasing 47′W annually.
Readings vary from 23°36′E in the NW corner to 15°05′E in the SE corner of the map.

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

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

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

This map is not to be used for navigational purposes

Preliminary publications in this series have not been scientifically edited.

CANADIAN GEOSCIENCE MAP 77

GEOLOGY

TECTONIC ASSEMBLAGE MAP OF THE ULUKHAKTOK AREA

southwestern Victoria Island, Nunavut–Northwest Territories