Natural Resources Canada
Ressources naturelles Canada

2nd EDITION

## CANADIAN GEOSCIENCE MAP 35

### GEOLOGY

# TECTONIC ASSEMBLAGE MAP OF AULAVIK

Banks Island and northwestern Victoria Island, Northwest Territories

## Map Information Document

**Preliminary**

Geological Survey of Canada
Canadian Geoscience Maps

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# PUBLICATION


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# ABSTRACT

This map and the related geodatabase illustrate the bedrock geology of central and southern Banks Island (including the greater part of Aulavik National Park of Canada) and northwestern Victoria Island. Major features of the area include Meso- and Neoproterozoic strata of Amundsen Basin, diabase sills and extrusive basaltic rocks related to the Franklin Large Igneous Province (ca. 723 Ma), Cambrian to Devonian strata of Arctic Platform and the Ellesmerian foreland, unconformably overlain by

near–flat-lying Cretaceous and Paleogene strata of Banks Basin, and unconsolidated Neogene sediments of the Arctic margin.

## RÉSUMÉ

Cette carte et la géodatabase qui s'y rapporte documentent la géologie du substratum rocheux dans le centre et le sud de l'île Banks (y compris la majeure partie du parc national du Canada Aulavik) et le nord-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 et des roches basaltiques effusives apparentés à la grande province magmatique de Franklin (env. 723 Ma), des strates d'âge cambrien à dévonien de la Plate-forme de l'Arctique et de l'avant-pays ellesmérien, recouvertes en discordance par des strates presque horizontales d'âge crétacé et paléogène du bassin de Banks, ainsi que des sédiments néogènes non consolidés de la marge continentale de l'Arctique.

## ABOUT THE MAP

### General Information

Authors: J.C. Harrison, A. Ford, A.D. Miall, R.H. Rainbird, L.J. Hulbert, R.L. Christie, and F.H.A. Campbell

Geological compilation by J.C. Harrison

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Cartography by M.J. Baldock

Critical review by T. Hadlari

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.

Map projection Lambert Conformal Conic, standard parallels 71°30'N and 73°30'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 2015, 21°17’E, decreasing 51.3’W annually. Readings vary from 23°49’E in the SW corner to 13°25’E in the NE corner of the map.

This map is not to be used for navigational purposes.

Title photograph: Shaler Supergroup near the Kuujua River, Minto Inlier, northwestern Victoria Island, Northwest Territories. Photograph by R.H. Rainbird. 2013-071

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

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

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

Preliminary publications in this series have not been scientifically edited.

## Map Viewing Files

The published map is distributed as a Portable Document File (PDF), and may contain a subset of the overall geological data for legibility reasons at the publication scale.

## Cartographic Representations Used on Map

This map utilizes ESRI Cartographic Representations in order to customize the display of standard GSC symbols for visual clarity on the PDF of the map only. The digital data still contains the original symbol from the standard GSC symbol set. The following legend features have Cartographic Representations applied:

Fault: approximate, showing downthrown side
Fault: dextral strike-slip, approximate
Diabase dyke
Mafic sill, ultramafic sill
Peridotite, gabbro, diabase sill

## ABOUT THE GEOLOGY

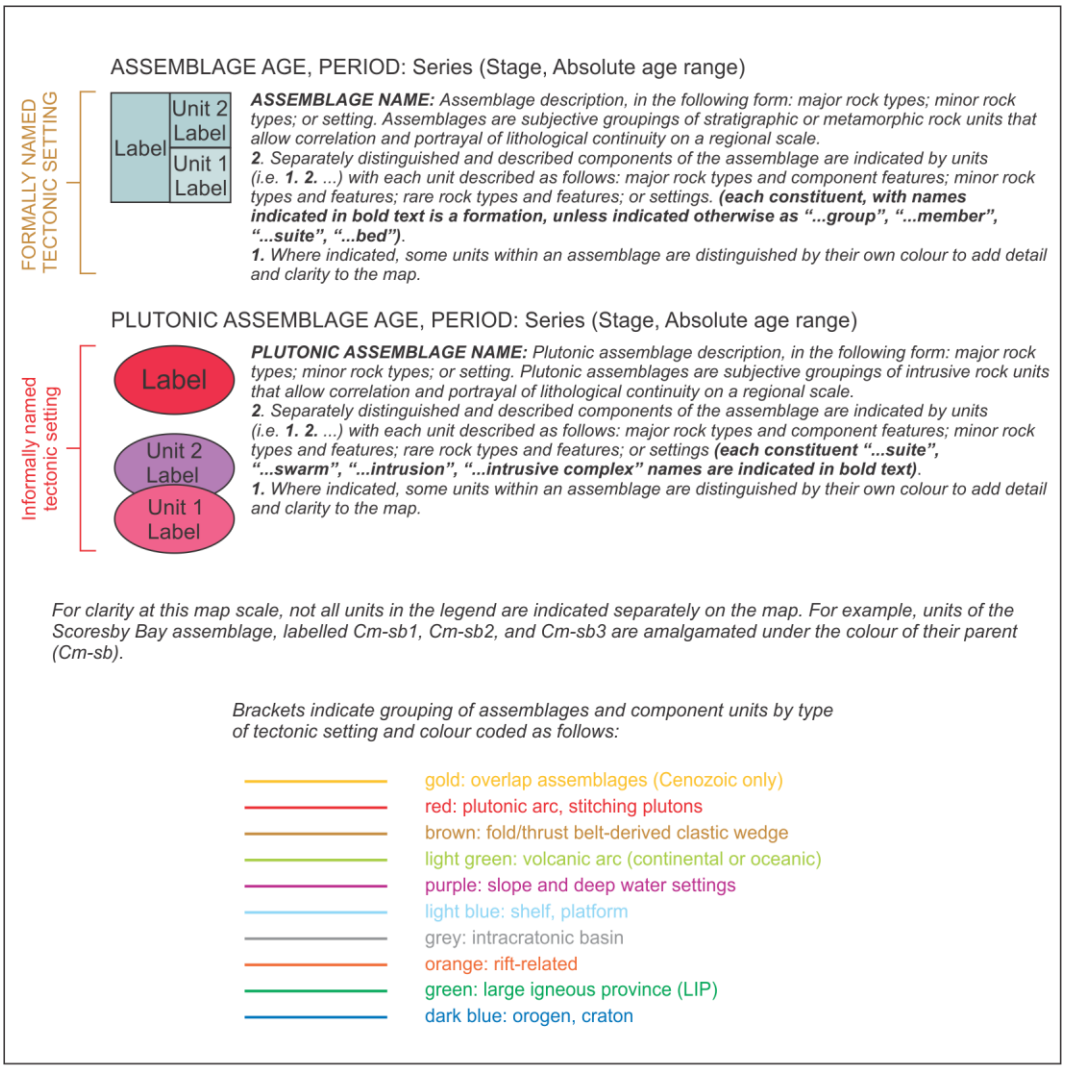


**Figure 1.** Explanation of map unit features.

## 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, 91 p. doi:10.4095/215739

de Freitas, T.A., Harrison, J.C., and Mayr, U., 1997. Sequence stratigraphic correlation chart of the lower Paleozoic Franklinian succession, Canadian Arctic Islands and parts of north Greenland; Geological Survey of Canada, Open File 3410. doi:10.4095/208912

Dostal, J., Baragar, W.R.A., and Dupuy, C., 1986. Petrogenesis of the Natkusiak continental basalts, Victoria Island, Northwest Territories, Canada; Canadian Journal of Earth Sciences. Volume 23, Issue 5, p 622–632.

Embry, A.F., 1991. Chapter 10: Middle-Upper Devonian Clastic Wedge of the Arctic Islands; in, Geology of the Innuitian Orogen and Arctic Platform of Canada and Greenland; Trettin, H P (ed.); Geological Survey of Canada, Geology of Canada Series no. 3; p 263–279.

Embry, A.F., 1991. Chapter 14: Mesozoic History of the Arctic Islands; in, Geology of the Innuitian Orogen and Arctic Platform of Canada and Greenland; Trettin, H P (ed.); Geological Survey of Canada, Geology of Canada Series no. 3; p 371–433.

Harrison, J.C., Mayr, U., McNeil, D.H., Sweet, A.R., McIntyre, D.J., Eberle, J.J., Harington, C.R., Chalmers, J.A., Dam, G., and Nøhr-Hansen, H., 1999. Correlation of Cenozoic sequences of the Canadian Arctic region and Greenland; implications for the tectonic history of northern North America; Bulletin of Canadian Petroleum Geology vol. 47, no. 3, 1999; p 223–254.

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. doi:10.4095/220616

Miall, A.D., 1976. Proterozoic and Paleozoic Geology of Banks Island, Arctic Canada; Geological Survey of Canada, Bulletin 258; 77 p. doi:10.4095/103364

Miall, A.D., 1979. Geology of Parker River, Bernard River, Cape M'Clure and Mercy Bay, District of Franklin; Geological Survey of Canada, Map 1455A, scale 1:250 000. doi:10.4095/109178

Miall, A.D., 1979. Geology, De Salis Bay, District of Franklin; Geological Survey of Canada, Map 1456A, scale 1:250 000. doi:10.4095/109182

Miall, A.D., 1979. Geology, Banks Island, District of Franklin; Geological Survey of Canada, Map 1454A, scale 1:1 000 000. doi:10.4095/109177

Miall, A.D., 1979. Mesozoic and Tertiary geology of Banks Island, Arctic Canada, the history of an unstable craton margin; Geological Survey of Canada, Memoir 387; 235 p. doi:10.4095/105620

Okulitch, A.V., 1991. Geology of the Canadian Arctic Archipelago, Northwest Territories and North Greenland; Geological Survey of Canada, Map 1715A, scale 1:2 000 000. doi:10.4095/213121

Okulitch, A.V. (comp.), 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 (National Earth Science Series, Geological Atlas). doi:10.4095/211240

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. doi:10.4095/210085

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, p 61-70.

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, p 454–470.

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

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## Coordinate System

Projection: Lambert Conformal Conic
False Easting: 0.0°
False Northing: 0.0°
Central Meridian: -119.0°
Standard Parallel 1: 71.5°
Standard Parallel 2: 73.5°
Latitude Of Origin: 40.0°
Units: metres
Horizontal Datum: NAD83
Vertical Datum: mean sea level

## Bounding Coordinates

Western longitude: 126°00’00”W
Eastern longitude: 112°00’00”W
Northern latitude: 74°00’00”N
Southern latitude: 71°00’00”N

### Data Model Information

This Canadian Geoscience Map does not conform to the Bedrock Mapping Geodatabase Data Model v.3.1. Therefore, some of the feature classes and feature attributes require explanation. Consult “Explanation_of_attributes.rtf” in Data folder for complete description of the feature classes and feature attributes.

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