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CANADIAN GEOSCIENCE MAP 80

GEOLOGY

SIMPLIFIED TECTONIC ASSEMBLAGE MAP OF THE CANADIAN ARCTIC ISLANDS

Northwest Territories–Nunavut



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ABSTRACT

This map and geodatabase illustrate the geology of the Canadian Arctic Islands including all lands north and west of Baffin Island. Major features include high-grade Archean and Paleoproterozoic metasedimentary and granitoid rocks of Ellesmere and lands to south and southwest. To the north and west is Cambrian to Devonian cover that grades to deformed rocks of the Ellesmerian Orogen on Ellesmere Island and in the central and western Arctic Islands. The Ellesmerian Orogen features Devonian molasse detached on Ordovician evaporites, outer shelf carbonates of Ellesmere Island detached in the Neoproterozoic, deep water strata including volcanics and turbidites, and Pearya terrane, accreted to ancestral North America in the Silurian. Unconformable on all this are Carboniferous to Paleogene strata of Sverdrup Basin which features a second deformation belt of Paleogene age, the Eurekan Orogen. Youngest rocks are Neogene and widely represented in the western Arctic Islands from Meighen to Banks islands.

RÉSUMÉ

Cette carte et sa géodatabase représentent la géologie des îles de l'Arctique canadien, incluant toutes les terres au nord et à l'ouest de l'île de Baffin. Les principales entités comprennent les roches métasédimentaires et granitoïdes à degré élevé de métamorphisme de l'Archéen et du Paléoprotérozoïque de l'île d'Ellesmere et des terres au sud et au sud-ouest. Vers le nord et l'ouest, des roches de couverture du Cambrien au Dévonien passent progressivement aux roches déformées de l'orogène ellesmérien dans l'île d'Ellesmere et dans le centre et l'ouest des îles de l'Arctique. L'orogène ellesmérien présente une molasse du Dévonien surmontant des évaporites de l'Ordovicien le long d'une surface de décollement, des roches carbonatées de milieu de plate-forme continentale externe de l'île d'Ellesmere décollées au Néoprotérozoïque, des couches de milieu d'eau profonde comprenant des roches volcaniques et des turbidites, ainsi que le terrane de Pearya, accréte au protocontinent nord-américain au cours du Silurien. Reposant en discordance sur cet ensemble, les strates du Carbonifère au Paléogène du bassin de Sverdrup présentent une deuxième zone de déformation datant du Paléogène, l'orogène eurégien. Les roches les plus récentes datent du Néogène et sont largement répandues dans l'ouest de l'archipel Arctique, depuis l'île Meighen jusqu'à l'île Banks.

ABOUT THE MAP

General Information

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Initiative of the Geological Survey of Canada, conducted under the auspices of the Tri-Territorial Project as part of Natural Resources Canada's Open Geoscience Initiative.

Map projection Lambert Conformal Conic, standard parallels 78°N and 73°N. Central meridian 100°. Coordinate System WGS 1984

Base map at the scale of 1:1 000 000 from the Atlas of Canada, with modifications.

This map is not to be used for navigational purposes.

Title photograph: Sub-Carboniferous angular unconformity above Lower Cambrian, Hare Fiord, northern Ellesmere Island. Photograph by J.C. Harrison. 2013-062

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. Legend may be found in the Additional Information folder.

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:

Faults: approximate, assumed, showing downthrown side

Dextral strike-slip faults: approximate, assumed

Dextral oblique-slip faults: approximate, assumed

Sinistral strike-slip faults: approximate, assumed

Sinistral oblique-slip faults: approximate, assumed

Thrust faults: approximate, assumed, teeth indicate upthrust side

Monoclines: approximate, arrow indicates direction of down flexure

Dykes: Diabase dyke

Sills: Peridotite, gabbro, diabase sill

Kimberlite: diatreme

ABOUT THE GEOLOGY

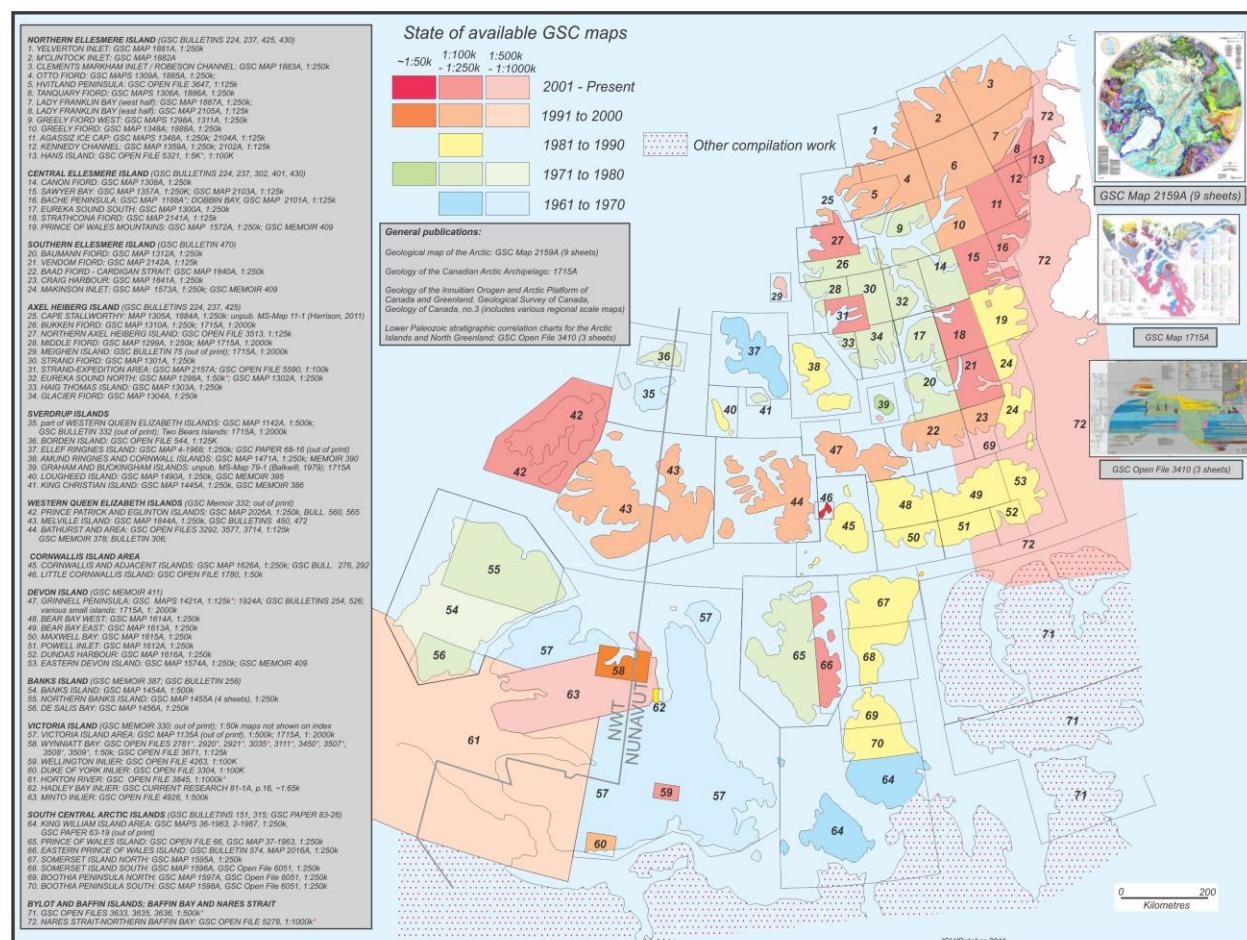


Figure 1. Sources of information: Index to Geological Survey of Canada current bedrock geology maps and reports for the Canadian Arctic Islands. Maps indicated with a red asterisk (*) were not used to construct the present compilation.

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The Additional Information folder of this product's digital download contains additional geological information not depicted on the PDF of the map, not included in this Map Information Document, or not included in any geodatabase. The folder AdditionalInformation/Figures contains a PDF of a separate master legend sheet that is intended to serve the map in this publication as well as the other fifteen maps in this series (CGM 26–CGM 35 and CGM 75–CGM 79).

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Coordinate System

Projection: Lambert Conformal Conic
False Easting: 0.0°
False Northing: 0.0°
Central_Meridian: -100.0
Standard Parallel 1: 78.0
Standard Parallel 2: 73.0
Latitude Of Origin: 40.0°
Units: metres
Horizontal Datum: NAD83
Vertical Datum: mean sea level

Software Version

Data has been originally compiled and formatted for use with ArcGIS™ desktop version 10.1 developed by ESRI®.

Data Model Information

This Canadian Geoscience Map does not conform to either the Bedrock or Surficial Mapping Geodatabase Data Models. Therefore, some of the feature classes and feature attributes require explanation. Consult “Explanation_of_attributes.rtf” in Data/DataModelInfo folder for complete description of the feature classes and feature attributes.

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