DESCRIPTIVE NOTES

Pangnirtung Fiord map sheet, northwestern Cumberland Peninsula, contains some of the most rugged and scenic topography on Baffin Island. Mount Asgard (2015 m) rising some 1600 m above the adjacent valley floor (cover photo), is perhaps the most famous peak, while Mount Odin (2147 m) is the highest. Initially mapped at a reconnaisance scale in 1970 (Jackson, 1971), much of this map sheet was designated part of Auyuittuq National Park in 1976. Recent mapping of Cumberland Peninsula, as part of the Geo-mapping for Energy and Minerals (GEM) program, was focused outside of Auyuittuq park (Sanborn-Barrie et al., 2011a,b,c; Sanborn-Barrie and Young, 2013a,b,c; Sanborn-Barrie et al., 2013a,b) in order to update geoscience knowledge for an extensive region between the communities of Pangnirtung and Qikiqtarjuaq. This map integrates new GEM data with archival knowledge in order to provide insight into the bedrock geology near Pangnirtung, thereby allowing local residents and visitors to the region insight into the composition and age of rocks that make up its majestic peaks and pinnacles, the beauty of which is recognized as a national treasure. Density of mapping stations within this map sheet is limited due to topography and snow/ice cover, such that most landings by helicopter were made at 10 km intervals.

The Pangnirtung Fiord map sheet is dominated by granitoid rocks known to be about 1900 million years old, formed during the middle Paleoproterozoic era. It exposes lesser ca. 1950 million year old metasedimentary rocks, mainly occuring as rusty-weathering inclusions within the Paleoproterozoic granitoid rocks, and may also contain potentially ancient (Archean eon) metasedimentary and plutonic rocks. These three components of the map sheet are described below from oldest to youngest.

Ancient tonalite gneiss (unit Ātg) is suspected to outcrop on the west side of the Weasel River where banded grey gneiss was reported (Jackson, 1971) in a synformal structure. Similarly, a region extending north of Avataktoo Bay characterized by a distinctly low magnetic intensity (Fig. 2), which elsewhere on Cumberland Peninsula corresponds to tonalitic rocks dated between 2950–2770 million years of age, may correspond to non-magnetic tonalite-granodiorite of Archean age. This undated unit (unit PĀgd) is described at several localities as comprising coarse-grained, greyish-green- to buff-weathering rocks containing quartz and feldspar with <15% hypersthene-hornblende-biotite, and trace amounts of clinopyroxene locally.

Metamorphosed remnants of clastic sedimentary rocks (units PĀsp, PĀps) and mafic rocks (unit PĀgb) are suspected to be Archean or/and Paleoproterozoic. These occur sparsely throughout the map area, as infolded pendants and inclusions hosted by the younger Paleoproterozoic intrusions (described below). Metasedimentary rocks are mainly psammitic (sandy) to semipelitic (more muddy). One remnant east of Summit Lake, in the far northeast corner of the map sheet, exposes quartzite (unit Pqz_H) consisting of ~85% glassy quartz grains. This unit, which is diagnostic of the Hoare Bay group elsewhere on Cumberland Peninsula, is associated at this locality with grey, fine-grained, equigranular, foliated psammite (unit Pps_H) and rust-weathering gossan containing minor pyrite, pyrrhotite, and chalcopyrite. A small outcrop of sheared, grey quartzite is interpreted on the west shore of Avataktoo Bay.

The majority of the map sheet exposes medium- to coarse-grained quartzo-feldspathic plutonic rocks that are part of a plutonic belt that extends more than 300 km from Pangnirtung to Qikiqtarjuaq (Fig. 1). Designation of this belt as the Qikiqtarjuaq plutonic suite is based on extensive exposures of compositionally similar rock types (Whalen et al., 2012), which yield similar ages between 1900 and 1880 million years old from seven localities mainly northeast of this map sheet. These ages reveal that the spectacular peaks and pinnacles exposed throughout Auyuittuq National Park were created from magmas that crystallized within a 20 million year interval, were subsequently uplifted, and dramatically eroded by ice, water and wind into the steep-faced mountains that exist today (*see* cover illustration). Two main phases of the Qikiqtarjuaq plutonic suite are exposed in this map sheet. Brown weathering, hypersthene-bearing monzogranite-granodiorite (charnockite) with minor quartz monzonite and hypersthene quartz syenite (unit Pmz) containing up to 15% hypersthene in various stages of retrogression (breakdown) to biotite dominate the central map sheet. This phase typically contains <5% biotite and ilmenite-magnetite. These rocks are resinous, greasy greenish brown on fresh surfaces, reflecting high-temperature modification of feldspar crystal structure during post-crystallization high-grade metamorphism which took place about 1860–1840 million years ago (Berman et al., 2013). Within the map sheet, this phase is dated at 1894 ± 5 Ma (Rayner et al., 2012) at scenic Aulatsivik Point, located northeast, and within sight of Pangnirtung.

Pale grey-pink-weathering granodiorite to monzogranite (unit Pgd) is prominent in the eastern part of the map sheet. This phase contains 10–15% biotite, isolated aggregates of dark red garnet, and may contain ~5% quartz phenocrysts, up to 1 cm in length, and/or K-feldspar phenocrysts up to 10 cm in length. This lighter-weathering phase is often seen to cut the brown-weathering charnockite phase as horizontal sills and inclined dykes up to 3 m wide, and to contain the charnockitic phase as inclusions. Unit Pgd yielded an age of 1889 ± 3 Ma (Rayner et al., 2012) from a pinnacle south of Akioktuq Lake (Sanborn-Barrie and Young, 2013a), consistent with the relative age relationships apparent in the field. In general, this slightly younger, lower grade phase yields a weaker magnetic response (Fig. 2) relative to the older charnockitic phase.

Minor components of the Qikiqtarjuaq plutonic suite include more mafic, brown-weathering hypersthene-bearing quartz diorite±tonalite (unit Pdr) with lesser quartz monzonite which is exposed across Pangnirtung Fiord. A similar unit exposed at the head of Kingnait Fiord was dated at 1894 ± 6 Ma (N. Rayner, unpubl. data 2011). Pink-red-weathering syenogranite-monzogranite-granodiorite (unit Pgr) occurs in the northern half of the map sheet. These medium- to coarse-grained rocks typically contain biotite and/or hornblende±ilmenite-magnetite, with hypersthene only rarely present particularly in contact with unit Pmz. Pink dykes, up to 3 m wide, cut units Pmz and Pgr establishing the pink granitic phase to be one of the youngest phases in the map sheet. All phases of the Qikiqtarjuaq plutonic suite display only minor retrogression which is indicated by the presence of trace amounts of chlorite, sericite, uralite, blue-green hornblende, leucoxene green biotite, and epidote.

Rocks within the map sheet are variably strained. Those in the eastern half generally display a moderately to strongly developed foliation and a strong extensional (linear) fabric, while those in the western half of the map sheet appear more massive to weakly foliated. Two generations of folds were noted at one locality west of Pangnirtung Fiord (Naujaat Bluffs region), consistent with elsewhere on Cumberland Peninsula, where two generations of fabrics provide evidence of two Paleoproterozoic deformation events (Berman et al., 2013). In the northwest corner of the map sheet, a northeast-trending corridor of strong cleavage development may reflect a brittle-ductile fault along the northern margin of a discrete granitic pluton. This fault zone may extend southwest to Shark Fiord, given its parallel trend.

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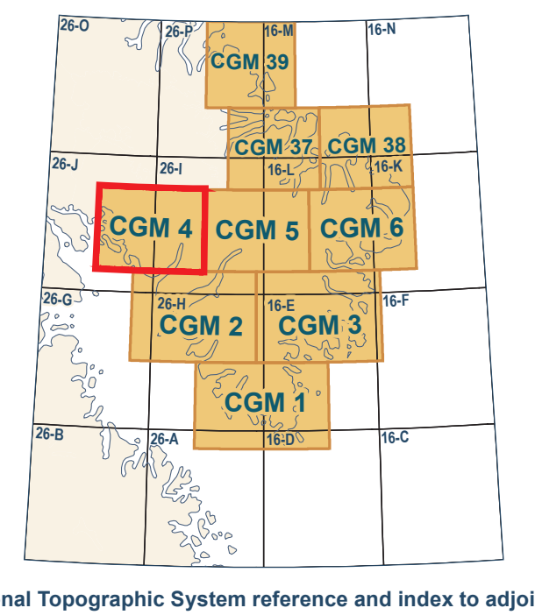
Abstract

Cumberland Peninsula, eastern Baffin Island, is an under-explored, frontier region with significant diamond, base- and precious-metal potential. Archean (2.97–2.77 Ga) foliated to gneissic tonalitic plutonic rocks with enclaves of >2.77 Ga semipelite, ca. 2.88 Ga gabbro and rare ca. 2.92 Ga metavolcanic rocks form a structural basement, exposed in the south and north. Metasedimentary cover rocks of the Paleoproterozoic Hoare Bay group, exposed from the central to the northeast part of the peninsula, are in tectonic contact with the basement gneisses. The cover sequence includes widespread semipelite-psammite with minor quartzite, marble, silicate- and oxide-facies iron-formation, chert and graphitic-pyritiferous shale, and two geochemically-distinct strands of ultramafic-mafic metavolcanic rocks of pyroclastic origin. Basement and cover rocks are cut by 1.9–1.88 Ga charnockite, biotite-garnet granodiorite and lesser quartz diorite of the Qikiqtarjuaq plutonic suite. Major structures and medium to high-grade metamorphic assemblages are attributed to polyphase tectonometamorphism between ca. 1.90–1.84 Ga.

Résumé

La péninsule Cumberland, dans l'est de l'île de Baffin, est une région pionnière sous-explorée qui revêt un important potentiel en diamants, métaux usuels et métaux précieux. Des roches plutoniques foliées à gneissiques de composition tonalitique de l'Archéen (2,97–2,77 Ga), renfermant des enclaves de semipélite de >2,77 Ga, de gabbro d'environ 2,88 Ga et de rares métavolcanites d'environ 2,92 Ga, forment un socle structural exposé au sud et au nord. Les roches métasédimentaires de couverture du Groupe de Hoare Bay du Paléoprotérozoïque, qui affleurent de la partie centrale à la partie nord-est de la péninsule, sont en contact tectonique avec les gneiss du socle. La séquence de couverture se compose d'une abondance de semipélite-psammite et de quantités accessoires de quartzite, de marbre, de formation de fer à faciès silicaté et à faciès oxydé, de chert, de shale graphitique-pyriteux ainsi que de deux lignées géochimiquement distinctes de roches métavolcaniques ultramafiques-mafiques d'origine pyroclastique. Les roches du socle et de la séquence de couverture sont recoupées par des unités de 1,9 à 1,88 Ga de la suite plutonique de Qikiqtarjuaq formées de charnockite, de granodiorite à biotite-grenat et, en moindres quantités, de diorite quartzique. Les structures principales ainsi que les paragenèses métamorphiques de degré intermédiaire à élevé sont attribuées au tectonométamorphisme polyphasé qui s'est déroulé approximativement entre 1,90 et 1,84 Ga.



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

Cover illustration
View to south of the twin pillars of Mount Asgard, exposing 1.88–1.89 billion year old granodiorite of the Qikiqtarjuaq plutonic suite, western Cumberland Peninsula, Nunavut. Photograph by M. Sanborn-Barrie.
2014-022

Catalogue No. M183-1/4-2011E-PDF
ISBN 978-1-100-19050-1
doi:10.4095/288928

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CANADIAN GEOSCIENCE MAP 4
GEOLOGY
PANGNIRTUNG FIORD
Baffin Island, Nunavut
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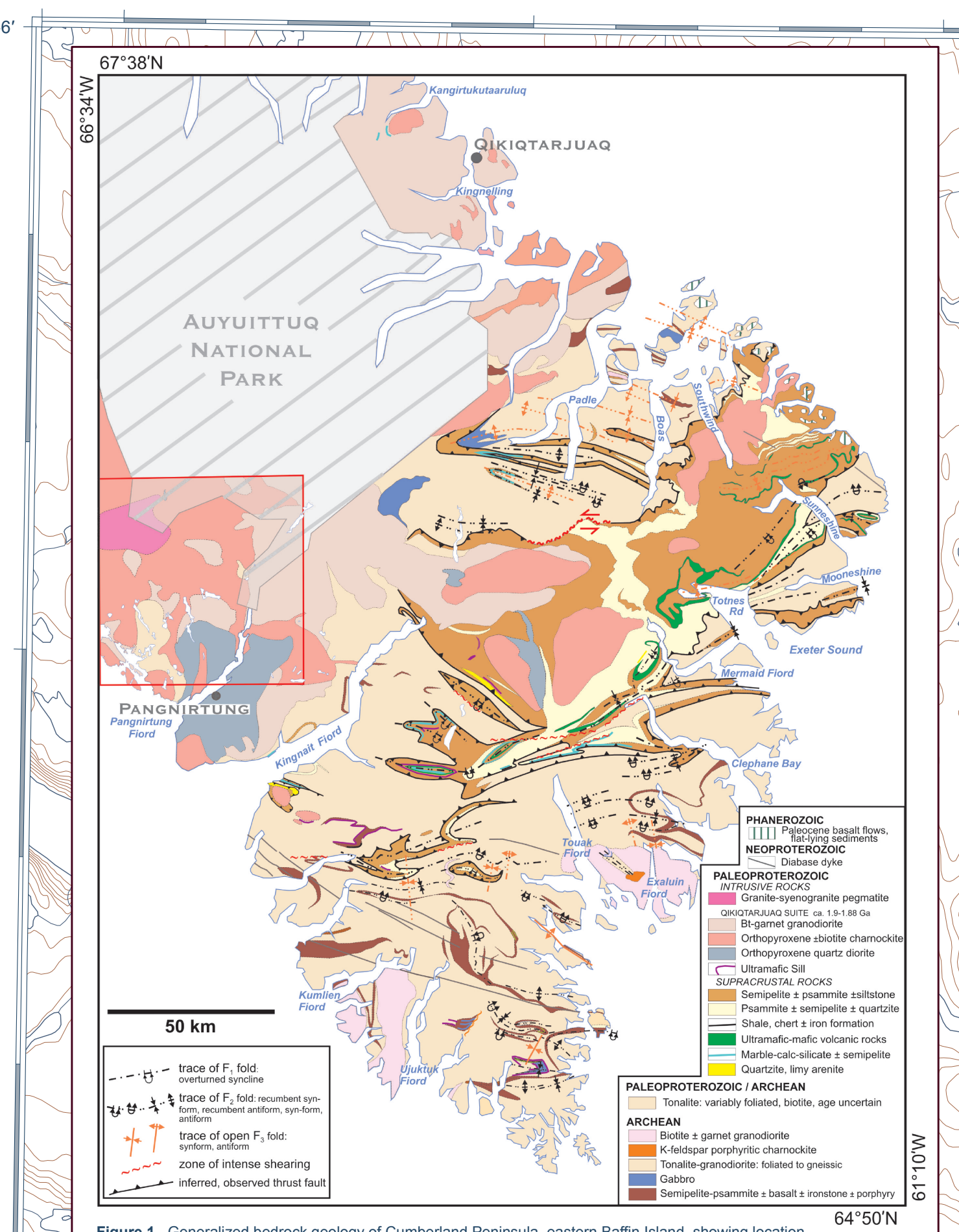


Figure 1. Generalized bedrock geology of Cumberland Peninsula, eastern Baffin Island, showing location of the Pangnirtung Fiord map sheet (CGM 4) outlined in red.

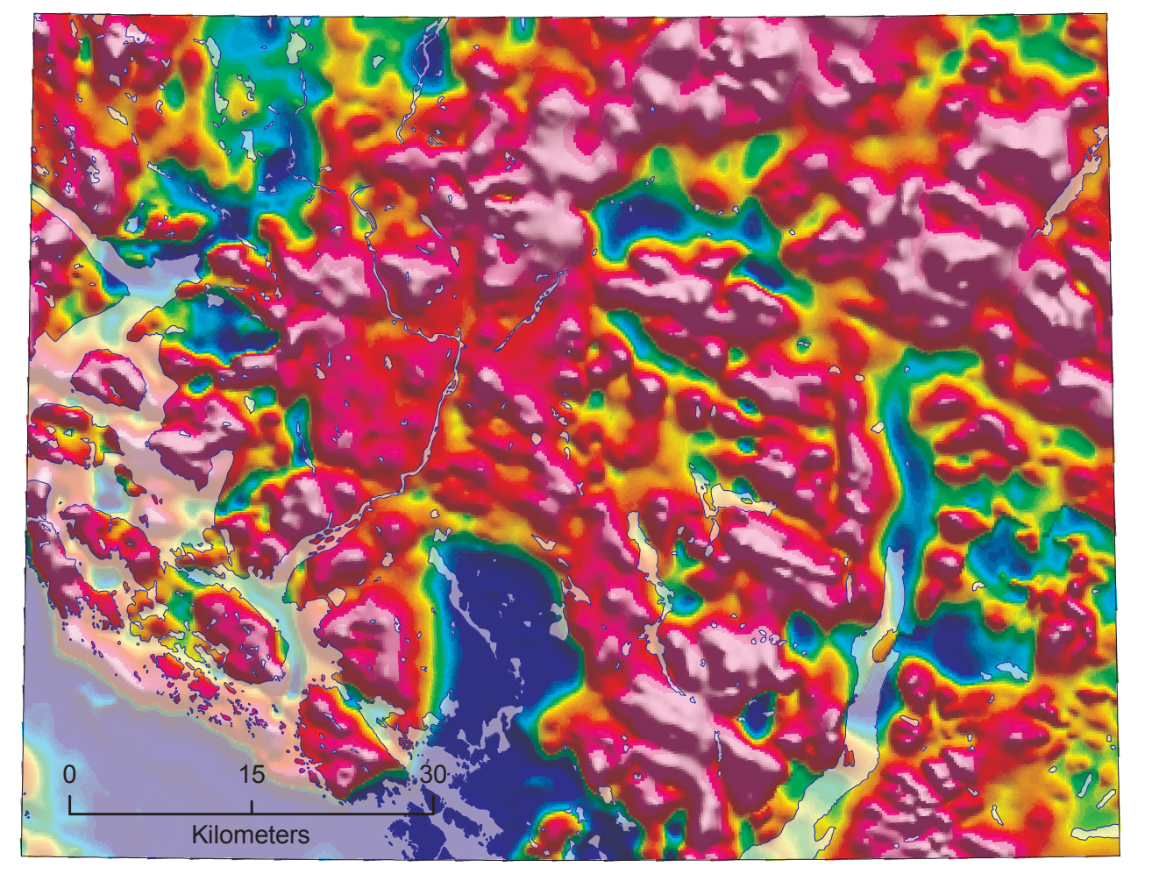
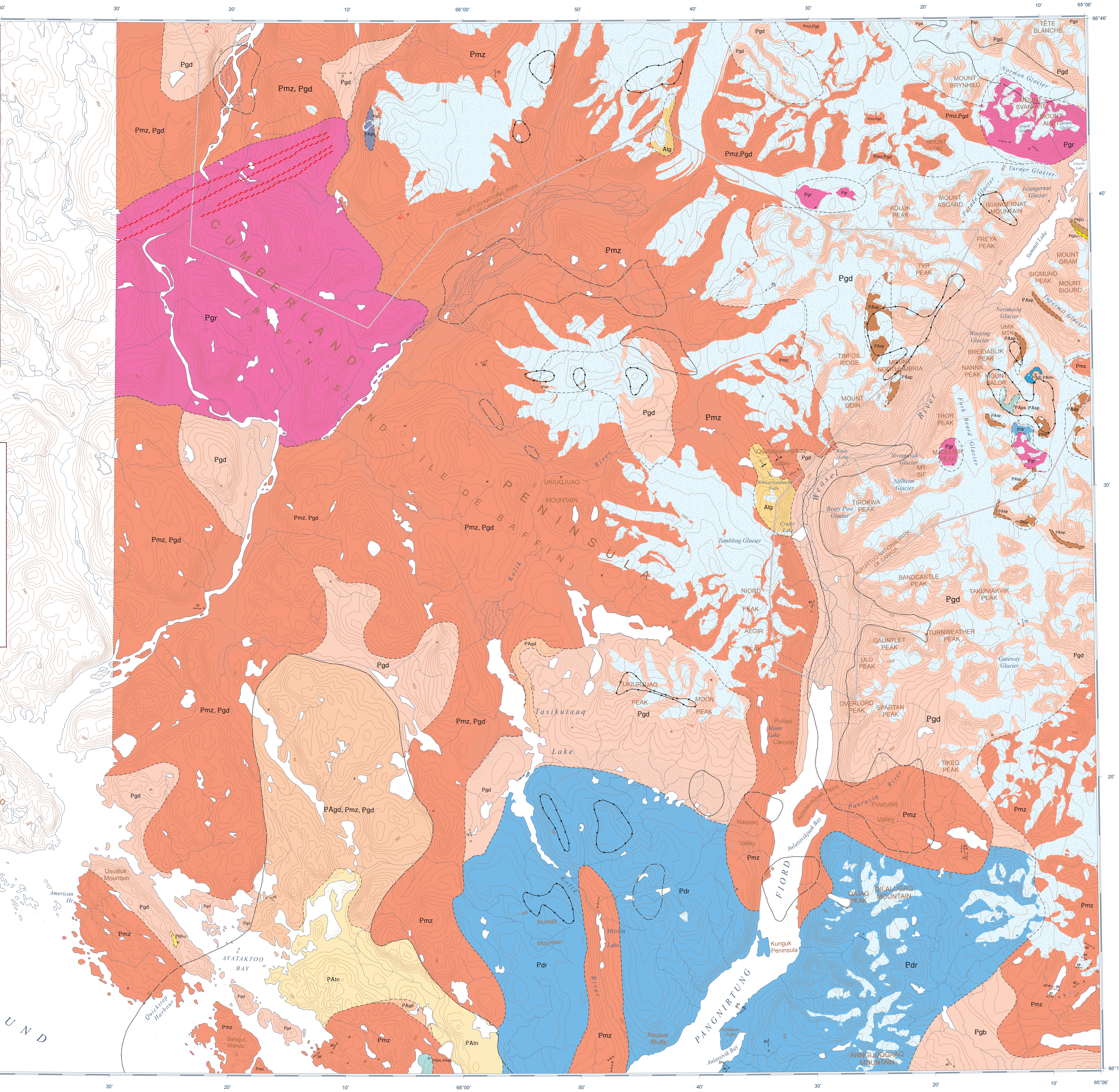


Figure 2. Total magnetic field of central Cumberland Peninsula (Coyle, M., 2009a–c) highlighting magnetically defined regions and trends reflected in the bedrock geology of the Pangnirtung Fiord map sheet.



LEGEND

UNDERSTANDING THE LEGEND

The age category (Eon) of bedrock material is indicated by the first upper case letter, the lithology indicated by abbreviated lower case, e.g. tg (tonalite gneiss), and formational name, if applicable, e.g. H (Hoare Bay Group) is subscripted. Combined units are used where, for reasons of scale, the units cannot be separated. The main unit, covering over 50% of the geologic polygon, is separated by a comma (,) from the secondary unit and, in rare cases, the secondary unit is separated by a comma (,) from the tertiary unit. The digital geodatabase denotes primary, secondary, and tertiary units as separate fields. Brackets denote unit occurring as inclusion in the host unit, where notable.
This legend is common to CGM 4, CGM 5, CGM 6, CGM 37, CGM 38, and CGM 39 and is slightly modified from that for CGM 1, CGM 2, and CGM 3.
Coloured legend blocks and non-grey lines indicate map units that appear on this sheet.

QUATERNARY
PLEISTOCENE–RECENT

▨	**Unconsolidated deposits**: mainly glacial till and fluvial deposits.

CENOZOIC
PALEOCENE

Cv	**Basalt±sandstone**: Flat-lying picritic basalt flows and breccia with local underlying impure sandstone, shale, conglomerate, and coal (Clarke and Upton, 1971).

NEOPROTEROZOIC ca. 723 Ma

Nfg	**Diabase dyke**: WNW-trending, medium brown weathering, equigranular, magnetite-bearing gabbro dykes of the ca. 723 Ma Franklin swarm (Heaman et al., 1992); typically 1–3 m wide, up to 6 m wide; local sills (Cape Dyer).

PALEOPROTEROZOIC

POST-TECTONIC PLUTONIC ROCKS

Pgr	**Granite±syenogranite**: unstrained to weakly foliated, coarse-grained to pegmatitic, typically white-weathering peraluminous muscovite-biotite-garnet±tourmaline pegmatite; less commonly pink weathering syenogranite with 1–5% biotite as coarse books, locally up to 10% muscovite±garnet±tourmaline.

SYN- to LATE-TECTONIC PLUTONIC ROCKS

$Pgd_{S\text{-}type}$	**Peraluminous granodiorite**: Beige-weathering, leucocratic, weakly foliated biotite-muscovite±garnet granodiorite occurring as 1–2 m thick sills characteristically concordant to the dominant shallow-dipping tectonic fabric in basement plutonic rocks and cover rocks of the Hoare Bay group. Dated at 1836 ± 2 Ma at Canyon Wash locality M107, 25 km east of Kingnait Fiord (CGM 5).
Pqd	**Hornblende quartz diorite±diorite**: post-D_1, pre-D_2, medium-grained, foliated hornblende-bearing diorite–quartz diorite, characterized by abundant hornblende-bearing inclusions of more mafic composition, possibly of related (cognate) origin.

PRE- to SYN-TECTONIC PLUTONIC ROCKS

Ptn	**Tonalite**: light grey to white weathering, variably foliated homogeneous biotite tonalite±trondjemite±granodiorite; locally containing xenoliths of marble (Pc_H) and semipelite (Psp_H).

QIKIQTARJUAQ PLUTONIC SUITE ca. 1.88–1.9 Ga

Pgd	**Granodiorite-monzogranite**: weakly foliated, light grey to beige-weathering, medium-grained, equigranular biotite±magnetite-garnet±orthopyroxene granodiorite-monzogranite; 3% burgundy garnet typically as aggregates; may be K-feldspar or quartz porphyritic; patchy granulite-facies assemblages and colouring.
Pmz	**Charnockite**: weakly to strongly foliated, coarse-grained, biotite-orthopyroxene monzogranite±granodiorite (charnockite±enderbite) with distinctive greasy brown fresh surface indicative of attainment of granulite facies, commonly containing elliptical, 1 cm long quartz eyes; orthopyroxene partially retrogressed to biotite and serpentine (bastite); locally containing 10–15% K-feldspar phenocrysts at times displaying orbicular structure; cuts opx-porphyritic ultramafic sills at two localities and is commonly cut by monzogranite pegmatite veins. Hatch lines denote agmatite with abundant predominantly psammitic±calc-silicate inclusions.
Pdr	**Quartz-diorite–tonalite**: Variably foliated, olive-brown weathering, equigranular, medium-grained, orthopyroxene±biotite-bearing quartz diorite–tonalite, well-exposed, prevalent unit on the peninsula between Pangnirtung and Kingnait fiords. Hatch lines denote agmatitic structure with abundant predominantly psammitic±calc-silicate inclusions.
Pum	**Ultramafic sills**: concordant sills of ultramafic composition are represented by three main types: 1) most prevalent is dark green- to brown-weathering clinopyroxene-orthopyroxene-magnetite±actinolite pyroxenite occurring as 50–100 m thick sills intrusive into supracrustal rocks and tonalitic gneiss, and cut by K-feldspar porphyritic charnockite (Pmz); pyroxenite displays diagnostic weathered surface due to 15% olivine porphyroblasts which weather as brown 5-8 mm pits; 2) black-weathering, fine-grained, equigranular, non-magnetic, ilmenite-bearing ultramafic sills, average 3–5 m thick, forming resistant layers exposed as discontinuous black rubble in till-covered region SE of Kingnait Fiord; 3) minor <2 m wide, bright green-weathering clinopyroxenite with pale green to white pegmatitic plagioclase-rich interiors. Sills <10 m wide are denoted by a purple line labeled Pum.

SUPRACRUSTAL ROCKS

HOARE BAY GROUP

Psp_H	**Semipelite±psammite±pelite**: light brown-, grey- and/or rusty-weathering layered semipelite±pelite commonly containing 15–40% biotite, 1–2 mm, 1 to 10% garnet as 2–4 mm porphyroblasts, rarely up to 2 cm and up to 10% sillimanite as fibrous, felty crystals or as white-weathering nodules (faserkeisel); brick red weathering units contain up to 15% graphite; rarely muscovite-bearing; typically occurring as 2–4 m thick panels, but may be up to 12 m thick; interlayered with psammite, rarely quartzite.
Pps_H	**Psammite±semipelite**: grey, white, creamy-beige weathering psammite as cm- to m-scale layers, up to 5 m thick, generally with semipelite, rarely with calc-silicate; contains 5–15% biotite 0.5–1 mm, <5% garnet, rarely andalusite±staurolite; lenticular to elongate calc-silicate concretions denoted by pale green open oval symbol.
O_f S_f	**Iron-formation**: oxide- (O_f) and/or silicate-facies (S_f) : typically thin (<1 m) and lenticular interbeds of silicate-facies iron-formation in the western map area and thicker (up to 5–10 m), predominantly oxide-facies, in the eastern and northeastern map areas.
Psh_H	**Shale±siltstone**: grey to black weathering shale±siltstone; black shale is generally 1–3 m wide with abundant graphite and sulphides, commonly gossanous or marked by white chalky sulphur coating on weathered surface; locally bedding and cleavage coated by pyrite; grey shale is 1–100 m wide, fissile to flaggy, may be associated with dolomitic marble±calc-silicate and locally appears to transition up section into black shale. Shale horizons < 1 m wide are denoted by a grey line labeled Psh_H.
Ct	**Chert**: massive to laminated chert, typically 1–3 m wide, locally up to 5 m wide; generally deep purple- to rusty-weathering (gossanous) but locally pale grey- and white-weathering and thinly to thickly laminated (i.e. near Exeter Sound); observed to occur structurally above and below metavolcanic rocks (Puv_H).
Pqz_{H2}	**Pink orthoquartzite**: vitreous, hematized, pink-weathering, fine- to medium-sand size orthoquartzite; 1–2 m thick, may have associated minor intercalated, chalky grey-weathering psammite and/or chert.
Puv_H	**Ultramafic-mafic volcanic rocks**: komatiitic, basaltic-komatiitic to basaltic volcanic rocks, variably textured including fragmental, pillowed and massive flows; typically bright green weathering, characteristic of high-Mg composition; locally dark green-black, Fe-tholeiite as pillowed flows with light buff-weathering elliptical varioles (Totnes Road) or as massive, aphanitic slightly plagioclase-phyric flows immediately west of Mermaid Fiord; minor interbedded, cream-weathering psammite to quartzite occurs as 1 m wide beds (i.e. Ilikok Island); this unit is thickest in the east and northeast, and thinnest or absent in the western map area.
Pc_H	**Marble–calc-silicate**: pale brown- to light-grey weathering marble, typically composed of calcite, olivine-clinohumite assemblages; average 1–3 m thick; lesser associated pale-green to white calc-silicate generally as thin (<20 cm) layers and nodules/concretions/boudins, contains up to 25% diopside, up to 25% amphibole±grossular; locally with psammite and semipelite layers; marble±calc silicate <2 m wide denoted by turquoise line labelled Pc_H.
Par_H	**Limy arenite**: immature quartz-rich clastic rocks characterized by 5–15% pale green diopside±tremolite, an indication of metamorphosed limy component, also commonly containing <3% muscovite and graphite; occurs as cm- to m-thick layers, associated with quartzite.
Pqz_{H1}	**Orthoquartzite**: pale grey, blue-grey to white-weathering, equigranular, fine- to medium-sand size orthoquartzite; typically massive and thickly bedded, with no recognizable primary structures; elsewhere on Cumberland Peninsula, this unit averages 5–20 m and thickens to 400 m at the “type” Kingnait exposure on the southeast shore of Kingnait Fiord; may contain up to 2% pale pink garnet and <5% biotite; locally interbedded with psammite and semipelite.

PALEOPROTEROZOIC / ARCHEAN (undetermined age)

PRE- to SYN-TECTONIC PLUTONIC ROCKS

PĀgd	**Granodiorite**: light grey weathered, medium-grained biotite±orthopyroxene±garnet granodiorite to monzogranite; variably foliated to mylonitic, locally K-feldspar porphyritic or porphyroclastic; commonly cut by monzogranite±charnockitic veins.
PĀtn	**Tonalite**: light grey to white weathering, weakly to moderately foliated homogeneous biotite tonalite.
PĀgb	**Gabbro**: black, dark grey to brown weathering, fine- to medium-grained, variably foliated non-magnetic gabbro typically with colour index between 60 and 85 occurring as 1–5 m wide layers, up to 20 m wide; mafics consist dominantly of hornblende (40–60%), biotite (up to 20%), locally clinopyroxene (5–10%), and 1–2% visible titanite; locally medium grey-green weathering gabbro contains both orthopyroxene (opx) and clinopyroxene (cpx); continuous mafic layers <2 m wide are denoted by a blue line labeled PĀgb.
PĀdr	**Diorite - quartz diorite**: medium green-grey (diorite) to light grey (quartz diorite) variably foliated, diorite has colour index of 45–60 with either hornblende or biotite as dominant mafic mineral and minor clinopyroxene; quartz rock with colour index of 30–40 and typically hornblende > biotite with 5–20% quartz, non-magnetic.

SUPRACRUSTAL ROCKS

PĀps	**Psammite**: light grey to rusty weathering psammite±quartzite±chert of undetermined age, may have 10% pale green diopside, minor marble.
PĀsp	**Semipelite**: occurs as panels, layers and inclusions, average 20–50 m wide, within foliated plutonic rocks; typically brown-weathering, biotite-garnet±sillimanite±graphite semipelite.
PĀmv	**Mafic volcanic - amphibolite**: black to dark green weathering, fine- to very fine-grained amphibolite with 50–70% hornblende and locally up to 5% garnet; occurs as layers up to 10 m thick; suspected to be extrusive in origin, but lacking diagnostic primary features. Mafic units <2 m wide, thought to be of extrusive origin, are denoted by a green line labelled PĀmv.

ARCHEAN ca. 2.71–2.99 Ga

PRE- to SYN-TECTONIC PLUTONIC ROCKS

Āgd	**Granodiorite**: light grey weathered, medium-grained orthopyroxene±garnet granodiorite to monzogranite; typically weakly foliated and equigranular, locally K-feldspar porphyritic; commonly cut by monzogranite±charnockitic veins (Āmz); yields a U-Pb age of ca. 2.7 Ga west of Exaluin Fiord (CGM 3).
Āmz	**Orthopyroxene monzogranite**: K-feldspar porphyritic, orthopyroxene-monzogranite; moderately foliated; occurring as xenoliths in unit Āgd; yields a U-Pb age of ca. 2.77 Ga on Exaluin Fiord (CGM 3).
Ātn	**Tonalite-granodiorite**: variably foliated, fine- to medium-grained biotite tonalite±granodiorite, typically cut by mm- to cm-wide veins of medium- to coarse-grained quartz diorite, monzogranite and trondjemite and typically containing xenoliths of diorite and quartz diorite; locally of homogeneous tonalite composition; yields ages of ca. 2.78 Ga at the head of Kumlien Fiord (CGM 1).
Ātg	**Tonalite gneiss**: compositionally layered orthogneiss dominated by tonalitic ±granodioritic phases interlayered with dioritic, gabbroic and biotitic layers; yields U-Pb ages of 2.99 Ga (CGM 2) and ca. 2.94 Ga (southern CGM 5).
Āgb	**Gabbro-diorite±gabbroic anorthosite**: black, dark grey to brown weathering, fine- to medium-grained, variably foliated gabbro±diorite, typically with colour index of 60 to 85 and mafics dominantly as hornblende (40–60%), biotite (up to 20%), with locally clinopyroxene (5–8%) and minor titanite; rarely light grey weathering leucogabbro to gabbroic anorthosite (i.e. mafic complex east of Ujuktuk Fiord) occurring as layers, enclaves and xenoliths in plutonic rocks either known, or presumed, to be of Archean age.

SUPRACRUSTAL ROCKS

Āsp	**Semipelite**: occurs as panels, layers and inclusions, average 20–50 m wide, within foliated to gneissic tonalite; typically brown-weathering, biotite-garnet±sillimanite ±graphite semipelite, may be interlayered with garnet-rich (>80%) “garnetite” layers, 20–40 cm wide, amphibolite 1–4 m wide, and/or grey chert; ‘gp’ denotes graphite-rich unit.
Āmv	**Mafic volcanic rocks**: dark green weathering, pillowed flow with brown-weathering vesicles and sparse 1 cm plagioclase phenocrysts; overlain by limy arenite and cut by quartz porphyry dated at ca. 2.91 Ga; restricted exposure in CGM 1 northeast of the head of Aktijartukan Fiord; may also include amphibolite associated with Āsp.

Lithological contact
  Observed
  Approximate
  Inferred
Limit of mapping
Structural form line
  S_1, may have representative dip
  S_2, may have representative dip and plunge
  S_3, may have representative dip
Faults
  Thrust, teeth on upthrown side
  Inferred thrust, teeth on inferred upthrown side
  Inclined, normal, may be reactivated thrust fault
  Vertical, normal
Ductile shear zone, sense of shear unknown
Linear aeromagnetic anomaly
  Positive
  Negative
Axial trace of first generation (F_1) synform
  Upright
  Overturned, north-dipping limbs
Axial trace of second generation (F_2) antiform, synform
  Upright
  Overturned, north-dipping limbs
Axial trace of third generation (F_3) antiform, synform
× Bedrock outcrop examined for this study
● Gossans
Great Dyke ○ Mineral showings*
Bedding
  Inclined, facing known, facing unknown
  Overturned, facing known (NW)
  Igneous layering, inclined, tops unknown
  S_0+S_1, transposed
Cleavage
  Inclined, first generation
  Inclined, second generation
Schistosity
  Schistosity, first generation, inclined, vertical
  Schistosity, second generation, inclined, vertical
  Schistosity, third generation, inclined, vertical
Gneissosity
  Gneissosity, first generation, inclined, vertical
  Gneissosity, second generation, inclined
Ductile shear zone
  Shear zone with dip
Mineral lineation
  Intersection lineation, S_0-S_1
  Intersection lineation, S_1-S_2
  Mineral, stretching, first generation
  Mineral, stretching, second generation
  Mineral, stretching, third generation
Regional extension (direction and plunge indicated)
Folds**
  S fold, first generation, showing dip of axial plane and plunge of fold axis
  S fold, second generation, showing dip of axial plane and plunge of fold axis
  S fold, third generation, showing dip of axial plane and plunge of fold axis
  U fold, first generation, showing dip of axial plane and plunge of fold axis
  U fold, second generation, showing dip of axial plane and plunge of fold axis
  U fold, third generation, showing dip of axial plane and plunge of fold axis
  U fold, unknown generation, showing dip of axial plane and plunge of fold axis
  Z fold, first generation, showing dip of axial plane and plunge of fold axis
  Z fold, second generation, showing dip of axial plane and plunge of fold axis
  Z fold, unknown generation, showing dip of axial plane and plunge of fold axis
  **Fold axis may occur without axial plane.
Dyke, vein
  Dyke
  Dyke, sill
  Vein, inclined, vertical
  Prominent joint, vertical
Y7525 Observation from air, number corresponds to jpeg photo image (*see* \Data\FieldReports\Photos)

Recommended citation
Jackson, G.D. and Sanborn-Barrie, M., 2014. Geology, Pangnirtung Fiord, Baffin Island, Nunavut; Geological Survey of Canada, Canadian Geoscience Map 4 (preliminary), scale 1:100 000. doi:10.4095/288928

Authors: G.D. Jackson and M. Sanborn-Barrie

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Cartography by P. O'Regan, M. Méthot, B. Hillary, and O. Brown

Initiative of the Geological Survey of Canada, conducted under the auspices of Multiple Metals - Cumberland Peninsula (Nunavut) as part of Natural Resources Canada's Geo-mapping for Energy and Minerals (GEM) program.

Logistical support provided by the Polar Continental Shelf Program as part of its mandate to promote scientific research in the Canadian North. PCSP 002-09 and 014-10.

CANADIAN GEOSCIENCE MAP 4
GEOLOGY
PANGNIRTUNG FIORD
Baffin Island, Nunavut
1:100 000
2 0 2 4 6 8 km

Map projection Universal Transverse Mercator, zone 20. North American Datum 1983

Base map at the scale of 1:250 000 from Natural Resources Canada, with modifications.
Elevations in metres above mean sea level.
The offset of contour lines at 66°W is due to a change in the contour interval between topographic sheets.

Mean magnetic declination 2014, 32°44'W, decreasing 29.2' annually. Readings vary from 32°16'W in the SW corner to 33°09'W in the NE corner of the map.

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

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

Additional references are included in the map information document.

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Preliminary publications in this series have not been scientifically edited.

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