

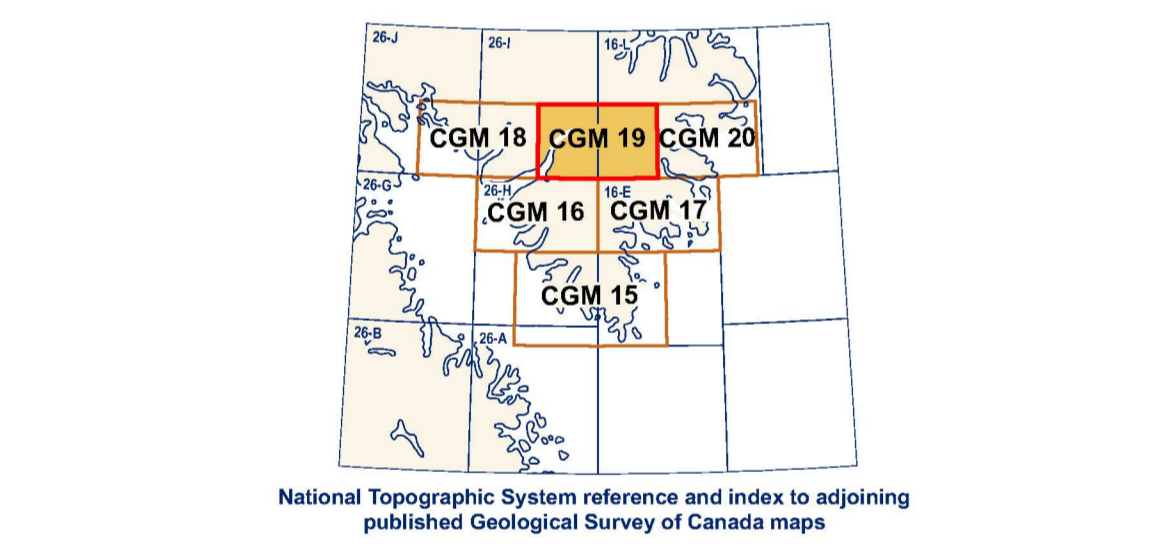


Figure 1. Large alpine glaciers and icefields flowing toward a large glacial trough east of Kingfiord near 66.25°N, 63.7°W 2011-055



Figure 2. Sampling a large glacial erratic boulder for terrestrial cosmogenic nucleides dating, west side of inner Kingfiord near 66.266°N, 64.755°W. Boulders with tops that remain above winter snow cover are ideal sample targets. 2011-053

Abstract
 In 2009, as part of the GEM Program of the Geological Survey of Canada, Cumberland Peninsula east and south of the National Park was mapped. Mapping included aspects of the regional Precambrian geology as well as the Quaternary geology. Regional till was sampled for sedimentological and geochemical purposes, and moraines and other deposits were dated for cosmogenic exposure dating.
 The eastern part of the peninsula is today an area of intense glacial erosion and evidently has experienced this style of glaciation throughout the Quaternary during the last glacial maximum (20–24 ka), when glaciers advanced to form regional ice divides over the mountains. The last glacial maximum was the most, possibly all, of the region and supplied ice to the Laurentide ice sheet in Cumberland Sound. The eastern part of the peninsula is today an area of intense glacial erosion and evidently has experienced this style of glaciation throughout the Quaternary during the last glacial maximum (20–24 ka), when glaciers advanced to form regional ice divides over the mountains. The last glacial maximum was the most, possibly all, of the region and supplied ice to the Laurentide ice sheet in Cumberland Sound. The eastern part of the peninsula is today an area of intense glacial erosion and evidently has experienced this style of glaciation throughout the Quaternary during the last glacial maximum (20–24 ka), when glaciers advanced to form regional ice divides over the mountains. The last glacial maximum was the most, possibly all, of the region and supplied ice to the Laurentide ice sheet in Cumberland Sound.



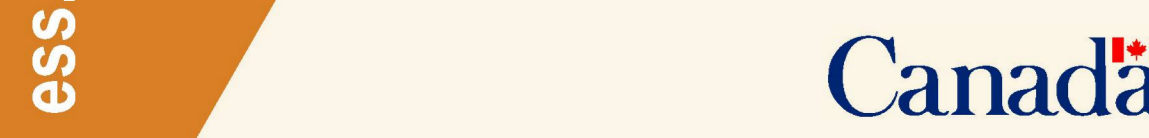
Cover illustration: Heulisa Glacier, Cumberland Peninsula. Photograph by Art Dyke, 2002-255
Printed map: Catalogue No. M183-119-2011E, ISBN 978-1-100-19077-2
Digital map: Catalogue No. M183-119-2011E-PDF, ISBN 978-1-100-19074-7, doi:10.4095/288664



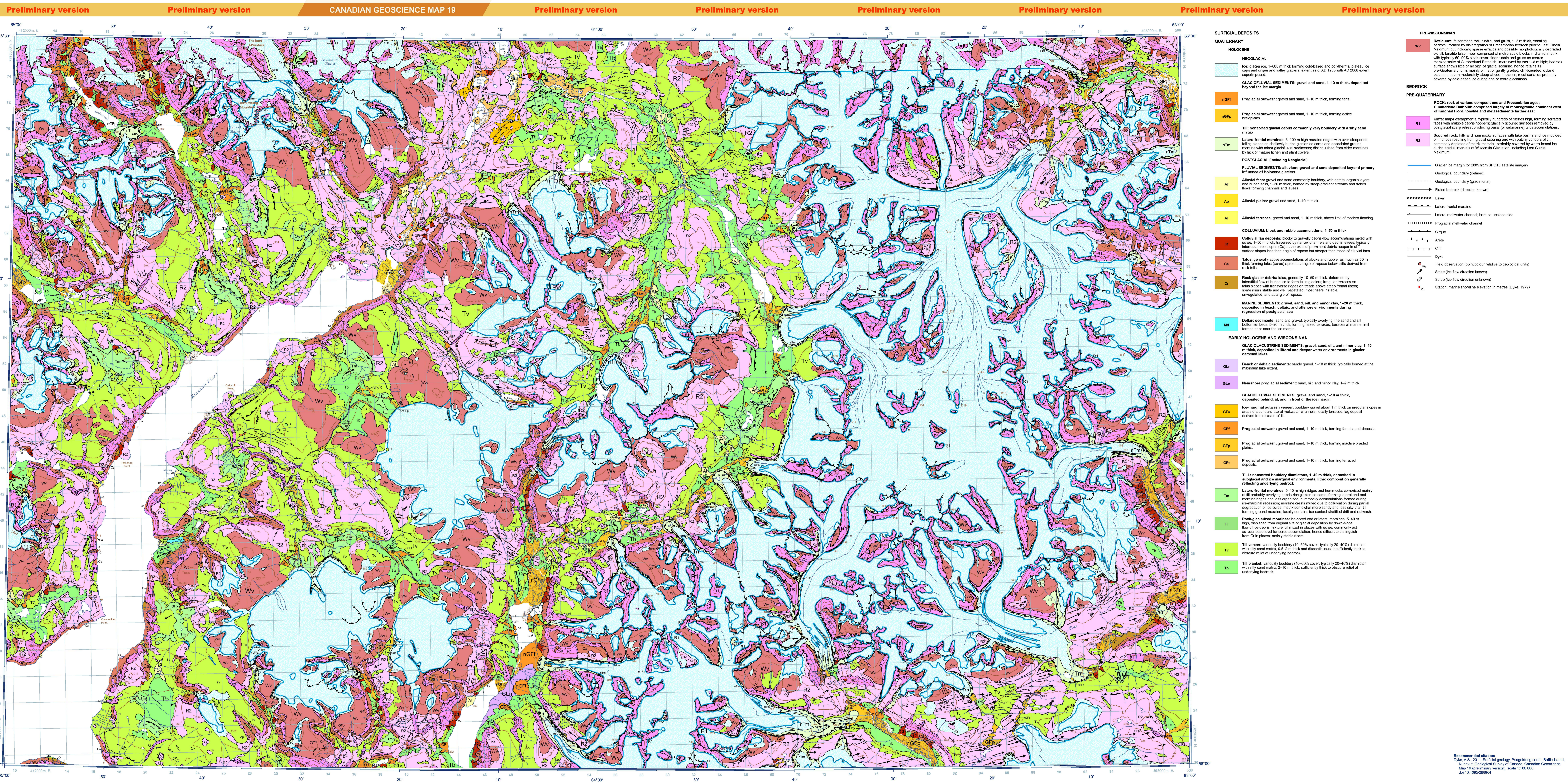
CANADIAN GEOSCIENCE MAP 19
 (preliminary version)
SURFICIAL GEOLOGY
PANGNIRTUNG SOUTH
 Baffin Island, Nunavut
 1:100 000



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SURFICIAL DEPOSITS		PRE-WISCONSINIAN	
QUATERNARY		ROCK : rock of various compositions and Precambrian ages; Cumberland Peninsula comprised largely of monogranite dominant west of Kingfiord Fjord, tonalite and metasediments farther east	
HOLOCENE		R1 : Cliffs: major escarpments, typically hundreds of metres high, forming serrated faces with multiple debris slopes; glacially scoured surfaces removed by postglacial scarp retreat producing basal (or sub-basal) talus accumulations.	
NEOGLACIAL		R2 : Scoured rock: hilly and hummocky surfaces with lake basins and/or moulded eminences resulting from glacial scouring and with talus veneers of till; commonly deposited of matrix material, probably covered by warm-based ice during latest intervals of Wisconsin Glaciation, including Last Glacial Maximum.	
GLACIOLUVIAL SEDIMENTS : gravel and sand, 1–10 m thick, deposited beyond the ice margin		PRE-QUATERNARY	
Proglacial outwash : gravel and sand, 1–10 m thick, forming fans		ROCK : rock of various compositions and Precambrian ages; Cumberland Peninsula comprised largely of monogranite dominant west of Kingfiord Fjord, tonalite and metasediments farther east	
Proglacial outwash : gravel and sand, 1–10 m thick, forming active braziplains		R1 : Cliffs: major escarpments, typically hundreds of metres high, forming serrated faces with multiple debris slopes; glacially scoured surfaces removed by postglacial scarp retreat producing basal (or sub-basal) talus accumulations.	
Till : nonsorted glacial debris commonly very bouldery with a silt sand matrix		R2 : Scoured rock: hilly and hummocky surfaces with lake basins and/or moulded eminences resulting from glacial scouring and with talus veneers of till; commonly deposited of matrix material, probably covered by warm-based ice during latest intervals of Wisconsin Glaciation, including Last Glacial Maximum.	
Lateral-frontal moraine : 5–100 m high ridges and hummocks comprised mainly of till probably overlying debris-rich glacier ice cores, forming lateral and/or moraine ridges and less organized, hummocky accumulations formed during ice-marginal retreat; matrix consists mainly of till as well as coarse sand and gravel; degradation of ice cores, matrix somewhat more sandy and less silt clay than till forming ground moraine; locally contains ice-constant stratified drift and outwash		POSTGLACIAL (including Neoglacial)	
Alluvial fans : gravel and sand commonly bouldery, with detrital organic layers and buried soils, 1–20 m thick, formed by steep-gradient streams and debris flows forming channels and levees		FLUVIAL SEDIMENTS : alluvium, gravel and sand deposited beyond primary influence of Holocene glaciers	
Alluvial plains : gravel and sand, 1–10 m thick		Alluvial fans : gravel and sand commonly bouldery, with detrital organic layers and buried soils, 1–20 m thick, formed by steep-gradient streams and debris flows forming channels and levees	
Alluvial terraces : gravel and sand, 1–10 m thick, above limit of modern flooding		Alluvial plains : gravel and sand, 1–10 m thick	
COLLUVIUM : block and rubble accumulations, 1–50 m thick		Alluvial terraces : gravel and sand, 1–10 m thick, above limit of modern flooding	
Colluvial fan deposits : blocky to gravelly debris-flow accumulations mixed with sand, 1–20 m thick, truncated by terrace channels and debris flows; typically intersect across slopes (Ca) at the ends of prominent debris ridges in still surface slopes less than angle of repose of blocks and rubble; most fans alluvial fans		COLLUVIUM : block and rubble accumulations, 1–50 m thick	
Talus : generally active accumulations of blocks and rubble, as much as 10 m thick forming talus (scree) aprons at angle of repose below cliffs derived from rock falls		Colluvial fan deposits : blocky to gravelly debris-flow accumulations mixed with sand, 1–20 m thick, truncated by terrace channels and debris flows; typically intersect across slopes (Ca) at the ends of prominent debris ridges in still surface slopes less than angle of repose of blocks and rubble; most fans alluvial fans	
Rock glacier debris talus : generally 10–50 m thick, deformed by internal flow of buried ice to form talus glaciers; irregular terraces on talus slopes with transverse ridges on heads above steep frontal rises, some fans stable and well vegetated; most fans inactive, unvegetated, and at angle of repose		Talus : generally active accumulations of blocks and rubble, as much as 10 m thick forming talus (scree) aprons at angle of repose below cliffs derived from rock falls	
MARINE SEDIMENTS : gravel, sand, silt, and minor clay, 1–20 m thick, deposited in beach, deltaic, and offshore environments during regression of postglacial sea		Rock glacier debris talus : generally 10–50 m thick, deformed by internal flow of buried ice to form talus glaciers; irregular terraces on talus slopes with transverse ridges on heads above steep frontal rises, some fans stable and well vegetated; most fans inactive, unvegetated, and at angle of repose	
Deltaic sediments : sand and gravel, typically overlying fine sand and silt bottomal beds, 5–20 m thick, forming raised terraces, terraces at marine limit formed at or near the ice margin		MARINE SEDIMENTS : gravel, sand, silt, and minor clay, 1–20 m thick, deposited in beach, deltaic, and offshore environments during regression of postglacial sea	
EARLY HOLOCENE AND WISCONSINIAN		Deltaic sediments : sand and gravel, typically overlying fine sand and silt bottomal beds, 5–20 m thick, forming raised terraces, terraces at marine limit formed at or near the ice margin	
GLACIOLACUSTRINE SEDIMENTS : gravel, sand, silt, and minor clay, 1–10 m thick, deposited in littoral and deeper water environments in glacially dammed lakes		EARLY HOLOCENE AND WISCONSINIAN	
Beach or deltaic sediments : sandy gravel, 1–10 m thick, typically formed at the maximum lake coast		GLACIOLACUSTRINE SEDIMENTS : gravel, sand, silt, and minor clay, 1–10 m thick, deposited in littoral and deeper water environments in glacially dammed lakes	
Nearshore proglacial sediment : sand, silt, and minor clay, 1–2 m thick		Beach or deltaic sediments : sandy gravel, 1–10 m thick, typically formed at the maximum lake coast	
GLACIOLUVIAL SEDIMENTS : gravel and sand, 1–10 m thick, deposited behind, at, and in front of the ice margin		Nearshore proglacial sediment : sand, silt, and minor clay, 1–2 m thick	
Ice-marginal outwash veneer : bouldery gravel about 1 m thick on irregular slopes in areas of abundant lateral meltwater channels, locally terraced; lag deposit derived from erosion of till		GLACIOLUVIAL SEDIMENTS : gravel and sand, 1–10 m thick, deposited behind, at, and in front of the ice margin	
Proglacial outwash : gravel and sand, 1–10 m thick, forming fan-shaped deposits		Ice-marginal outwash veneer : bouldery gravel about 1 m thick on irregular slopes in areas of abundant lateral meltwater channels, locally terraced; lag deposit derived from erosion of till	
Proglacial outwash : gravel and sand, 1–10 m thick, forming inactive braided plains		Proglacial outwash : gravel and sand, 1–10 m thick, forming fan-shaped deposits	
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TILL : nonsorted bouldery diamictions, 1–40 m thick, deposited in subglacial and ice marginal environments, lithic composition generally reflecting underlying bedrock		Proglacial outwash : gravel and sand, 1–10 m thick, forming inactive braided plains	
Lateral-frontal moraine : 5–40 m high ridges and hummocks comprised mainly of till probably overlying debris-rich glacier ice cores, forming lateral and/or moraine ridges and less organized, hummocky accumulations formed during ice-marginal retreat; matrix consists mainly of till as well as coarse sand and gravel; degradation of ice cores, matrix somewhat more sandy and less silt clay than till forming ground moraine; locally contains ice-constant stratified drift and outwash		TILL : nonsorted bouldery diamictions, 1–40 m thick, deposited in subglacial and ice marginal environments, lithic composition generally reflecting underlying bedrock	
Rock-glaciated moraine : ice-core end or lateral moraine, 5–40 m high, displaced from original site of glacial deposition by down-slope flow of debris-rich water; till mixed in places with silt, commonly act as local base level for scree accumulation, hence difficult to distinguish from Cr in places; matrix stable near		Lateral-frontal moraine : 5–40 m high ridges and hummocks comprised mainly of till probably overlying debris-rich glacier ice cores, forming lateral and/or moraine ridges and less organized, hummocky accumulations formed during ice-marginal retreat; matrix consists mainly of till as well as coarse sand and gravel; degradation of ice cores, matrix somewhat more sandy and less silt clay than till forming ground moraine; locally contains ice-constant stratified drift and outwash	
Till veneer : vertically bouldery (10–60% cover, typically 20–40% diameter with silt sand matrix, 0.5–2 m thick and discontinuous, insufficiently thick to obscure relief of underlying bedrock		Rock-glaciated moraine : ice-core end or lateral moraine, 5–40 m high, displaced from original site of glacial deposition by down-slope flow of debris-rich water; till mixed in places with silt, commonly act as local base level for scree accumulation, hence difficult to distinguish from Cr in places; matrix stable near	
Till blanket : vertically bouldery (10–60% cover, typically 20–40% diameter with silt sand matrix, 2–10 m thick, sufficiently thick to obscure relief of underlying bedrock		Till veneer : vertically bouldery (10–60% cover, typically 20–40% diameter with silt sand matrix, 0.5–2 m thick and discontinuous, insufficiently thick to obscure relief of underlying bedrock	

Author: A.S. Dyke
Geology by: A.S. Dyke, 2009
Geological compilation by: A.S. Dyke, 2009
Cartography by: L. Robertson

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Map projection: Universal Transverse Mercator, zone 20, North American 1983
 Base map at the scale of 1:50 000 from Natural Resources Canada, with modifications
 Elevations in feet above mean sea level
 Mean magnetic declination 2011, 33°39'W, decreasing 26.4' annually. Readings vary from 33°39'W in the SW corner to 31°19'W in the NE corner of the map.

The Geological Survey of Canada welcomes corrections or additional information from users. This map conforms to the ISO 9001:2008 standard used by the Scientific and Technical Publishing Services Quality Management System.

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CANADIAN GEOSCIENCE MAP 19
 (preliminary version)
SURFICIAL GEOLOGY
PANGNIRTUNG SOUTH
 Baffin Island, Nunavut

Full trim marks around perimeter of map sheet. Trim map sheet first, then fold at folding marks.

Cover and additional panels are 17cm wide when folded.