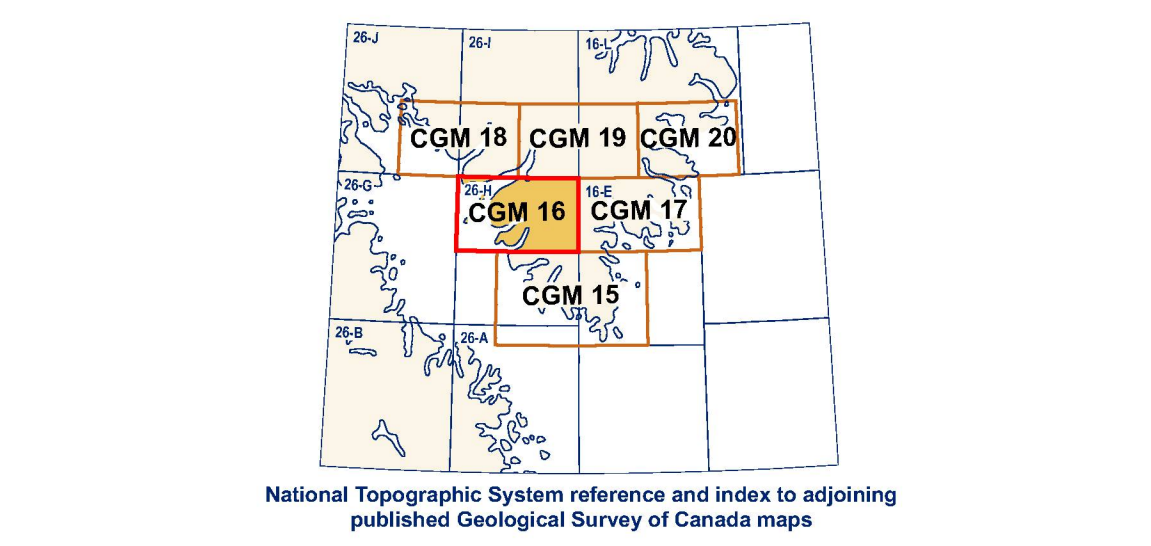


Figure 1: Cold-based ice cap on plateau at 65.5°N, 64.2°W. Note Little Ice Age vegetation timeline and lack of Little Ice Age moraines. 2011-061

Abstract
In 2009, as part of the GEM Program of the Geological Survey of Canada, Cumberland Peninsula east and southeast of the National Park was mapped. Mapping included several 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 sampled for cosmogenic exposure dating. The eastern part of the peninsula is today an area of intense alpine glaciation and evidently has experienced this style of glaciation throughout the Quaternary. During the last glacial maximum (28–19ka), alpine glaciers thickened to form regional ice divides over the mountains, far from these divides covered most, possibly all, of the region and supported ice sheets along several fronts. The last ice condensed with the Laurentide Ice Sheet in Cumberland Sound. Despite possibly repeated glaciation, substantial areas show little or no sign of glacial erosion and mean Tertiary surfaces marked with block fields and loess.

Résumé
En 2009, dans le cadre du programme GEM, la Commission géologique du Canada a cartographié les régions de la péninsule de Cumberland à l'est et au sud-est du parc national. La cartographie inclut plusieurs aspects de la géologie régionale précambrienne, de même que la géologie du Quaternaire. Des échantillons de till régional ont été prélevés à des fins d'analyse sédimentologique et géochimique ainsi que des moraines et d'autres dépôts à des fins de datation par exposition cosmogénique. La partie est de la péninsule est aujourd'hui une région de glaciation alpine intense et de toute évidence, ce type de glaciation existait durant le Quaternaire. Durant le dernier maximum glaciaire (28–19ka), les glaciers alpins se sont épaissis pour former des lignes de partage glaciaires au-dessus des montagnes. L'écoulement glaciaire provenait de ces lignes de partage glaciaires couvrant une grande partie sinon toute la région et formant des couloirs glaciaires en bordure de plusieurs fronts. Cette glace locale entraînait en collaboration avec l'indianide, l'extension dans la baie Cumberland. Malgré plusieurs glaciations, des régions importantes ne montrent que très peu ou même aucun signe d'érosion glaciaire et retiennent les surfaces du Tertiaire recouvertes de champs de blocs et de loess.



Cover illustration
Littoral Glacier, Cumberland Peninsula. Photograph by A.T. Dyke, 2002-205.

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CANADIAN GEOSCIENCE MAP 16
(preliminary version)
SURFICIAL GEOLOGY
ABRAHAM BAY NORTH
Baffin Island, Nunavut
1:100 000



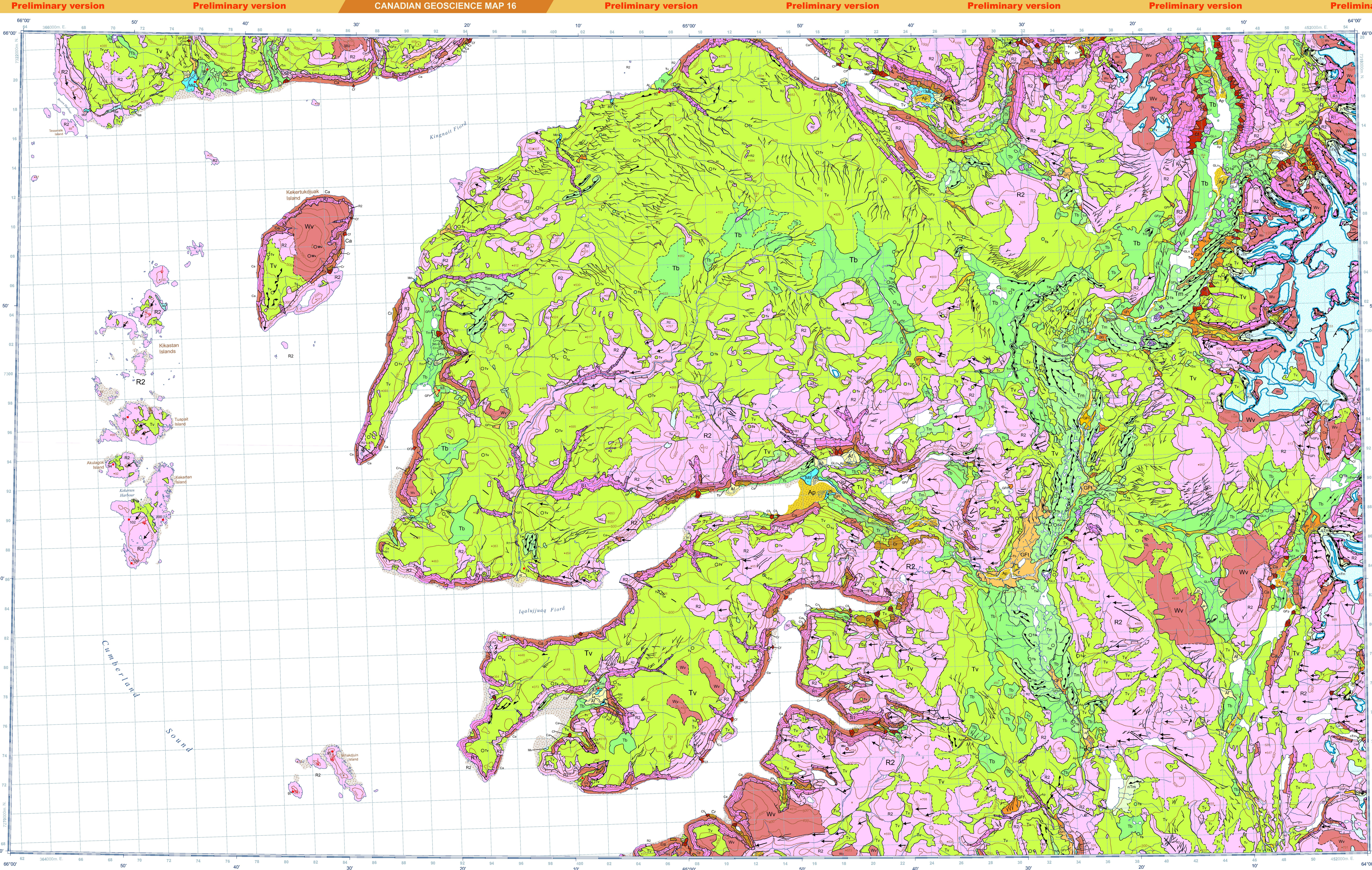
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Canadian **Geoscience Maps**
Cartes **géoscientifiques**
du Canada



Four km marks around perimeter of map sheet. Tim map sheet first, then fold at folding marks.



SURFICIAL DEPOSITS		PRE-WISCONSINAN
QUATERNARY	HOLOCENE	Wv
	NEOGLACIAL:	Reads: kilometer, rock rubble and gravel, 1–2 m thick, mantling bedrock, formed by distribution of Precambrian bedrock prior to Last Glacial Maximum but including sparse erratics and possibly morphologically degraded old till, boulders, boulders composed of massive-scale blocks in glacial matrix, with typically 60–80% block cover. Thin rubble and gravel on coarse monogranitic of Cumberland batholith, interrupted by less than 1 m thick bedrock surface shows little or no sign of glacial scouring, hence remains in pre-Quaternary form, mainly on flat or gently graded, off-bounded, upland plateau, but on moderately steep slopes in places; most surfaces probably covered by cold-based ice during one or more glaciations.
	GLACIOFLUVIAL SEDIMENTS: gravel and sand, 1–10 m thick, deposited beyond the ice margin.	
	nGf1	Proglacial outwash: gravel and sand, 1–10 m thick, forming fans.
	nGf2	Proglacial outwash: gravel and sand 1–10 m thick, forming active braided plains.
	nTm	Till: nonsorted glacial debris commonly very bouldery with a silty sand matrix.
	POSTGLACIAL (including Neoglacial)	
	Al	Lateral-frontal moraine: 5–100 m high moraine ridges with over-steepened, falling slopes on shallowly buried glacial ice cores and associated ground moraine with minor glaciofluvial sediments, distinguished from older moraines by lack of mature loess and peat covers.
	Ap	FLUVIAL SEDIMENTS: alluvium; gravel and sand deposited beyond primary influence of Holocene glaciers.
	Al	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.
	Al	Alluvial plains: gravel and sand, 1–10 m thick.
	Al	Alluvial terraces: gravel and sand, 1–10 m thick, above limit of modern flooding.
	Cl	COLLUVIUM: block and rubble accumulations, 1–50 m thick.
	Ca	Colluvial fan deposits: blocky to gravelly debris-flow accumulations mixed with scree, 1–50 m thick, traversed by narrow channels and debris levees, typically interrupt scree slopes (Ca) at the ends of prominent debris hoppers in cliff.
	Cr	Surface: generally active accumulations of blocks and rubble, as much as 50 m thick forming talus (scree) aprons at angle of repose below cliffs derived from rock falls.
	Cr	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 trends above steep frontal rises; some more stable and well-vegetated; most more mobile.
	Mr	MARINE SEDIMENTS: gravel, sand, silt, and minor clay, 1–20 m thick, deposited in beach, deltaic, and offshore environments during regression of postglacial ice.
	Ms	Beach sediments: gravel and sand, commonly bouldery, 1–5 m thick, forming raised beach ridges and swales and the modern, transgressive beach, a barrier beach in places.
	Ms	Deltaic sediments: sand and gravel, typically overlying fine sand and silt.
	Mv	Nearshore to offshore veneer: sand, silt, and minor clay with dropstones, 1–2 m thick.
	Ms	Nearshore to offshore blanket: sand, silt, and minor clay with dropstones, 2–20 m thick.
	Ms	GLACIOFLUVIAL SEDIMENTS: gravel, sand, silt, and minor clay, 1–10 m thick, deposited in littoral and deeper water environments in glacier dammed lakes.
	GLn	Nearshore proglacial sediment: sand, silt, and minor clay, 1–2 m thick.
	GLn	GLACIOFLUVIAL SEDIMENTS: gravel and sand, 1–10 m thick, deposited behind, at, and in front of the ice margin.
	GF1	Proglacial outwash: gravel and sand, 1–10 m thick, forming fan-shaped deposits.
	GF2	Proglacial outwash: gravel and sand, 1–10 m thick, forming inactive braided plains.
	GF3	Proglacial outwash: gravel and sand, 1–10 m thick, forming terraced deposits.
	GF4	Ice-contact sediments: gravel and sand, 1–10 m thick, forming hummocky deposits.
	Tm	TILL: nonsorted bouldery diamictites, 1–40 m thick, deposited in subglacial and ice marginal environments, lithic composition generally reflecting underlying bedrock.
	Tr	Lateral-frontal moraine: 5–40 m high ridges and hummocks composed mainly of till probably overlying debris-rich glacial ice cores, forming lateral and end moraine ridges and less organized, hummocky accumulations formed during ice-marginal recession; moraine crests marked due to colluviation during partial degradation of ice cores; matrix somewhat more sandy and less silty than till forming ground moraine, locally contains ice-contact stratified drift and outwash.
	Tr	Rock-glacierized moraine: ice-cored and/or lateral moraine, 5–40 m high, displaced from original site of glacial deposition by down-slopes flow of ice-laden mixture, till mixed in place with silt, commonly at or as local base level for scree accumulation, hence difficult to distinguish from C in places; mainly stable rises.
	Tv	Till veneer: variably bouldery (10–60% cover, typically 20–40%) diamict with silty sand matrix, 0.5–2 m thick and discontinuous, insufficiently thick to obscure relief of underlying bedrock.
	Tb	Till blanket: variably bouldery (10–60% cover, typically 20–40%) diamict with silty sand matrix, 2–10 m thick, sufficiently thick to obscure relief of underlying bedrock.

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CANADIAN GEOSCIENCE MAP 16

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SURFICIAL GEOLOGY
ABRAHAM BAY NORTH
Baffin Island, Nunavut
1:100 000

Map projection: Universal Transverse Mercator, zone 20.
North American Datum 1980.
Base map of the scale of 1:50 000 from Natural Resources Canada, with modifications.
Elevations in feet above mean sea level.
Mean magnetic declination 2011, 33°20'W, decreasing 28.7° annually. Readings vary from 32°58'W in the SW corner to 33°42'W in the NE corner of the map.

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