HOW TO READ THE LEGEND How to read the geological map Geological contact This legend is common to CGM 253E, CGM 254E, CGM 255E, CGM 256E, CGM 257E. The objective of mapping south-central Baffin Island in 2015 was to improve the geological knowledge and document CGM 258E, CGM 259E, CGM 260E, CGM 261E, and CGM 262E. Coloured legend blocks the economic potential of the greater Iqaluit area. Geological maps show the distribution of geological features, including denote map units that appear on this map. The age category (Eon) of the map unit is indicated ————· Approximate different kinds of rocks and faults. Although the geology of every area is different, all geological maps have several by the first upper case letter, e.g. example P (Paleoproterozoic), the tectonostratigraphic name, features in common: coloured areas and letter symbols to represent the kind of rock unit at the surface, lines to show the if applicable, by the second and third upper case letters, e.g. LH (Lake Harbour Group), and the Geological contact, depositional-unconformable type and location of contacts and faults, strike and dip symbols to show which way layers are tilted, and a map legend lithology by the lower case letter(s), e.g. mo (orthorpyroxene-bearing monzogranite). тт — тт — т Approximate that explains the colours and symbols utilized. Normal fault; solid circle indicates downthrown side The most striking features of geological maps are its colours. Each colour represents a different geological unit. A Glacial till (bouldery diamicton); glaciofluvial sand and gravel; glaciolacustrine, geological unit is a volume of a certain kind of rock of a given age. Geological units are named and defined by the — → — · Approximate Q glaciomarine and marine sand, silt, and gravel; alluvial sand and gravel; talus geologists who make the geological map, based on observations of the rocks in the field and investigations on the age scree bouldery diamicton. Oblique-slip fault, normal, inferred of the rocks. In addition to colour, each geological unit is assigned a set of letters to uniquely symbolize it on the map. Usually the symbol is the combination of an initial capital letter followed by one or more capital or lowercase letters. The - <del>- == − −</del> Sinistral slip first capital letter represents the age of the geological unit. Geologists have divided the history of the Earth into Eons. All AMADJUAQ FORMATION: limestone; tan to dark brown; nodular bedded, -<del>≡=</del>--- Dextral slip letter symbols begin with a capital letter representing an Eon: for example p (Paleoproterozoic - 2500 to 1600 million weathers massive; argillaceous to shaly in lower part. years ago), N (Neoproterozoic – 1000 to 541 million years ago), or Q (Quaternary – 2.58 million years ago until today). Foliation form line The capital letters that follow indicate the name of the unit, if it has one. Lowercase letters indicate the type of rock. An example of named rock units on Baffin Island are metasedimentary rocks named "Lake Harbour Group". So PLHq on the \_\_\_\_\_ map would be the symbol for Lake Harbour Group quartzite (deposited in the Paleoproterozoic). Similarly, Nd would be Black structural symbols on map indicate an actual station location. Grey structural symbols Nd Diabase dyke (Franklin swarm). the symbol for an unnamed unit of diabase emplaced in the Neoproterozoic. refer to measurements that had to be offset for display purposes only; these include all legacy The place where two different geological units are found next to each other is called a contact, and this is MESOPROTEROZOIC-CENOZOIC Banding, inclined represented by different kinds of lines on the geological map. When different geological units have been moved next to one another after they were formed, the contact is a fault contact. If one rock was intruded into another (for example Bedding, inclined Mcd Diabase dyke (Kekertaluk swarm). granite intruded into sedimentary strata) then the contact is an intrusive contact. Another kind of line shown on most Cleavage, crenulation, inclined geologic maps is a fold axis. In addition to being moved by faults, geological units can also be bent and warped into folds. A line that follows the crest or trough of the fold is called the fold axis. Where the contact line is precisely located, Contact, inclined it is shown as a solid line, but where it is uncertain, it is shown as dashed. The lines on the map may be modified by other symbols on the line (triangles, small tick marks, arrows, and more) which give more information about the line. For Contact, vertical Psb Biotite syenogranite; locally with K-feldspar megacrysts. example, faults with triangles on them show that the side with the triangles has been moved up and over the side Fault plane, inclined without the triangles. All the different symbols on the lines are explained in the map legend. Tilted layers are shown on a geological map with a strike and dip symbol. The symbol consists of three parts: a long line, a short line, and a number. Foliation, inclined The long line is called the strike line, and shows the direction in the layer that is still horizontal. Any tilted surface has a Biotite-garnet±orthopyroxene monzogranite; locally contains abundant direction that is horizontal (think about walking on the side of a hill, there is always a way to go that is neither up nor inclusions of metasedimentary rock. ✓ Foliation, vertical down, but is level). The short line is called the dip line, and shows which way the layer is tilted. The number is called the Fracture, inclined dip, and shows how much the layer is tilted, in degrees, from flat. The higher the number, the steeper the tilting of the Biotite-garnet±orthopyroxene monzogranite; with K-feldspar megacrysts; layer. Strike and dip symbols can be modified to give more information about the tilted layers just like lines can be, and Fracture, vertical locally contains abundant inclusions of metasedimentary rock. these modifications are explained in the map legend. Gneissosity, inclined All geological maps come with a table called a map legend. In the legend, all the colours and symbols are shown and Glacial striae Pmb Biotite-magnetite±orthopyroxene monzogranite; locally with K-feldspar megacrysts. explained. The map legend starts with a list showing the colour and letter symbol of every geological unit, starting at the top with the youngest or most recently formed unit, along with the name of the unit (if it has one) and a short description Glacial striae, flow direction unknown of the types of rock in that unit and their age. After the list of geological units, all the different types of lines on the map Mineral lineation are explained, and then all the different strike and dip symbols. The map legend will also include explanations of any Biotite-hornblende±magnetite±orthopyroxene monzogranite. other kind of geological symbols used on a map (for example locations where fossils were found, locations of deposits of Mullions precious metals, and any other geological feature that might be important in the area documented by the geological Rodding map). Because the geology in every area is different, the map legend is vital to understanding the geological map. Orthopyroxene-biotite monzogranite; commonly contains abundant inclusions Rodding, flow direction unknown Fieldwork and geological mapping on south-central Baffin Island established the distribution of metasedimentary rocks (Lake Harbour Group; map units PLHq, PLHg, PLHg, PLHp; Piling Group; unit PPL) that can be correlated or not Slickenside striation with rock formations on Meta Incognita Peninsula. A suite of magmatic sheets (sills) was documented and will be the Orthopyroxene-biotite±magnetite monzogranite; locally with K-feldspar megacrysts. focus of further study (map units PLHu, PLHm, PLHd). These are of potential economic importance as they contain metallic minerals (sulphides), and their occurrence could indicate the presence of economic metal concentrations. Three rock deformations and two thermal events were recognized. Such events can be correlated with similar ones that took place 1800 million years ago and have been previously documented both elsewhere on Baffin Island and in northern Orthopyroxene-hornblende-biotite±magnetite granodiorite. Quebec. These results will be used to compare and improve models showing the ancient geological evolution of Antiform, overturned, defined Hornblende-orthopyroxene-clinopyroxene diorite, leucodiorite; locally layered with compositions ranging from diorite to anorthosite. - <del>1</del>2 Hornblende-clinopyroxene-magnetite±biotite gabbro; locally layered with compositions ranging from gabbro to anorthosite. PILING GROUP This map summarizes the field observations for the La présente carte synthétise les observations de terrain LONGSTAFF BLUFF FORMATION: psammite, semipelite, arkosic and lithic Amittok Lake (south) map area following eight weeks of réalisées dans la région cartographique d'Amittok Lake PPL metawacke; thin-to-thick layers, light to dark grey; minor hornblende-bearing Fieldwork 2015 regional and targeted bedrock mapping on western Hall (sud) suite à huit semaines de cartographie régionale et \_\_\_ calc-silicate layers and concretions. Peninsula. The 2015 field campaign completes a twociblée du substratum rocheux. La campagne de terrain × Legacy decade mission to update map coverage for the whole de 2015 met fin à deux décennies de travaux visant à LAKE HARBOUR GROUP of Baffin Island south of latitude 70°N. The bedrock is mettre à jour la couverture cartographique de FROBISHER SUITE l'ensemble de l'île de Baffin au sud de la latitude 70°N. dominated by a Paleoproterozoic metaplutonic suite, Occurrence in hydrated ultramafic rock ranging in composition from gabbro to syenogranite, Le substratum rocheux est dominé par une suite White garnet-biotite leucogranite; commonly interlayered with with crosscutting relations indicating a progression from métaplutonique du Paléoprotérozoïque, dont la metasedimentary rock. mafic to silicic magmatism. Prevailing upper amphibolite composition varie du gabbro au syénogranite, qui affiche des relations de recoupement révélant une to lower granulite facies metamorphic conditions orthopyroxene, which is consistent with equilibrium phase diagrams and regional aeromagnetic data. métamorphisme du faciès des amphibolites supérieur Metasedimentary rocks, including quartzite, pelite, au faciès des granulites inférieur chevauchent les marble, and metagreywacke, are present as screens limites de stabilité de la magnétite et de and enclaves between and within plutonic bodies. An l'orthopyroxène, ce qui est compatible avec les examination of the 'ghost' stratigraphy suggests that the diagrammes de phases à l'équilibre et les données metasedimentary rocks can be correlated with the aéromagnétiques régionales. Des roches south and Piling Group in the north. Two basaltic dyke marbre et du metagrauwacke, sont présents sous forme PLHu Metaperidotite, metapyroxenite, metadunite. swarms and shallowly dipping Ordovician limestone d'écrans entre les massifs plutoniques et d'enclaves au respectively crosscut and overly the Paleoproterozoic sein de ceux-ci. Une examination de la stratigraphie METASEDIMENTARY ROCKS métasédimentaires peuvent être corrélées avec les unités du Paléoprotérozoïque moyen du Groupe de Diopside-phlogopite-spinel-apatite marble, calc-silicate; minor siliciclastic Lake Harbour, au sud, et du Groupe de Piling, au nord. layers; white garnet-biotite leucogranite pods and seams. Deux essaims de dykes basaltiques et des strates de calcaire ordovicien de faible pendage recoupent et recouvrent respectivement les unités de carte d'âge PLHa Hornblende-garnet-biotite±clinopyroxene amphibolite; locally with carbonate seams. Garnet-sillimanite-biotite psammite; semipelite, pelite, quartzite; minor marble PLHp and calc-silicate; white garnet-biotite leucogranite pods and seams; metadiorite to metaleucodiorite and layered mafic-ultramafic sills. Garnet-biotite semipelite; pelite, quartzite; white garnet-biotite leucogranite Garnet-sillimanite quartzite, feldspathic quartzite; semipelite, orthoquartzite, PLHq pelite; minor marble and calc-silicate; white garnet-biotite leucogranite pods Biotite-magnetite monzogranite, locally crosscut by coarse-grained to pegmatitc syenogranite veins. Amk K-feldspar megacrystic biotite monzogranite to quartz monzonite. National Topographic System reference and index to adjoining published Geological Survey of Canada maps Ag Biotite±hornblende granodiorite to monzogranite. Catalogue No. M183-1/256-2016E-PDF ISBN 978-0-660-04127-8 © Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2016 Biotite±hornblende tonalite to granodiorite; commonly contains layers of diorite to quartz diorite, and locally contains pods and enclaves of metagabbro. doi:10.4095/297791 Natural Resources Ressources naturelles du Canada **GEOLOGICAL SURVEY OF CANADA CANADIAN GEOSCIENCE MAP 256E CANADA-NUNAVUT GEOSCIENCE OFFICE OPEN FILE MAP 2016-13E AMITTOK LAKE (SOUTH)** Baffin Island, Nunavut Recommended citation St-Onge, M.R., Weller, O.M., Dyck, B.J., Rayner, N.M., Chadwick T., and Liikane, D., 2016. Geology, Amittok Lake (south), Baffin Island, Nunavut; Geological Survey of Canada, Canadian Geoscience Map 256E (preliminary); Canada-Nunavut Geoscience Office, Open 500 02 04 06 08 10 12 14 16 18 20 22 24 26 28 69°00' 50' 40' File Map 2016-13E, scale 1:100 000. doi:10.4095/297791 78 80 82 84 86 88 90 92 94 96 98 30' 20' GSC CANADIAN GEOSCIENCE MAP 256E • CNGO OPEN FILE MAP 2016-13E **Preliminary Preliminary** Authors: M.R. St-Onge, O.M. Weller, B.J. Dyck, N.M. Rayner, T. Chadwick, and D. Liikane This map is part of the Geo-mapping for Energy and Minerals (GEM) Program on Baffin Island led by the Geological Survey of Canada (GSC) in collaboration with the Canada-Nunavut Geoscience Office (CNGO), Nunavut Arctic College, Mean magnetic declination 2016, 31°00'W, decreasing 28.5' annually. The Geological Survey of Canada welcomes corrections **Geological Survey of Canada** Readings vary from 30°28'W in the SW corner or additional information from users. **AMITTOK LAKE (SOUTH)** to 31°30'W in the NE corner of the map. **Canadian Geoscience Maps** Geology by M.R. St-Onge, O.M Weller, B.J. Dyck, N.M. Rayner, T. Chadwick, and D. Liikane, Geological Survey of Canada; S. Noble-Nowdluk, T. Milton, Carleton University, the University of Oxford, and the Government of Nunavut. Data may include additional observations not portrayed on this map. This map is not to be used for navigational purposes. See documentation accompanying the data. **GEOLOGICAL SURVEY OF CANADA** CANADIAN GEOSCIENCE MAP 256E mandate to promote scientific research in the Canadian North. PCSP 05615 Title photograph: Late, fine-grained north-northeast trending diabase dyke included in the map information document. Preliminary publications in Geological interpretation by M.R. St-Onge and (dark) emplaced in hornblende-biotite monzogranite (light). Mafic dyke is this series have not been Map projection Universal Transverse Mercator, zone 19. notes by M.R. St-Onge and O.M. Weller, 2015 5 metres in width, vertical, and crosscuts all Paleoproterozoic felsic This publication is available for free download through **OPEN FILE MAP 2016-13E** scientifically edited. North American Datum 1983 plutonic units. Amittok Lake, Baffin Island, Nunavut. GEOSCAN (http://geoscan.nrcan.gc.ca/) Geology conforms to Bedrock Data Model, beta v. 2.6 Photograph by B.J. Dyck. 2015-126 and the Canada-Nunavut Geoscience Office (http://cngo.ca/). Base map at the scale of 1:250 000 from Natural Resources Geomatics by A. Morin, A. Ford, C. Gilbert, L. Robertson, Canada, with modifications. G. Buller, and R. Buenviaje Elevations in metres above mean sea level Cartography by N. Côté

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