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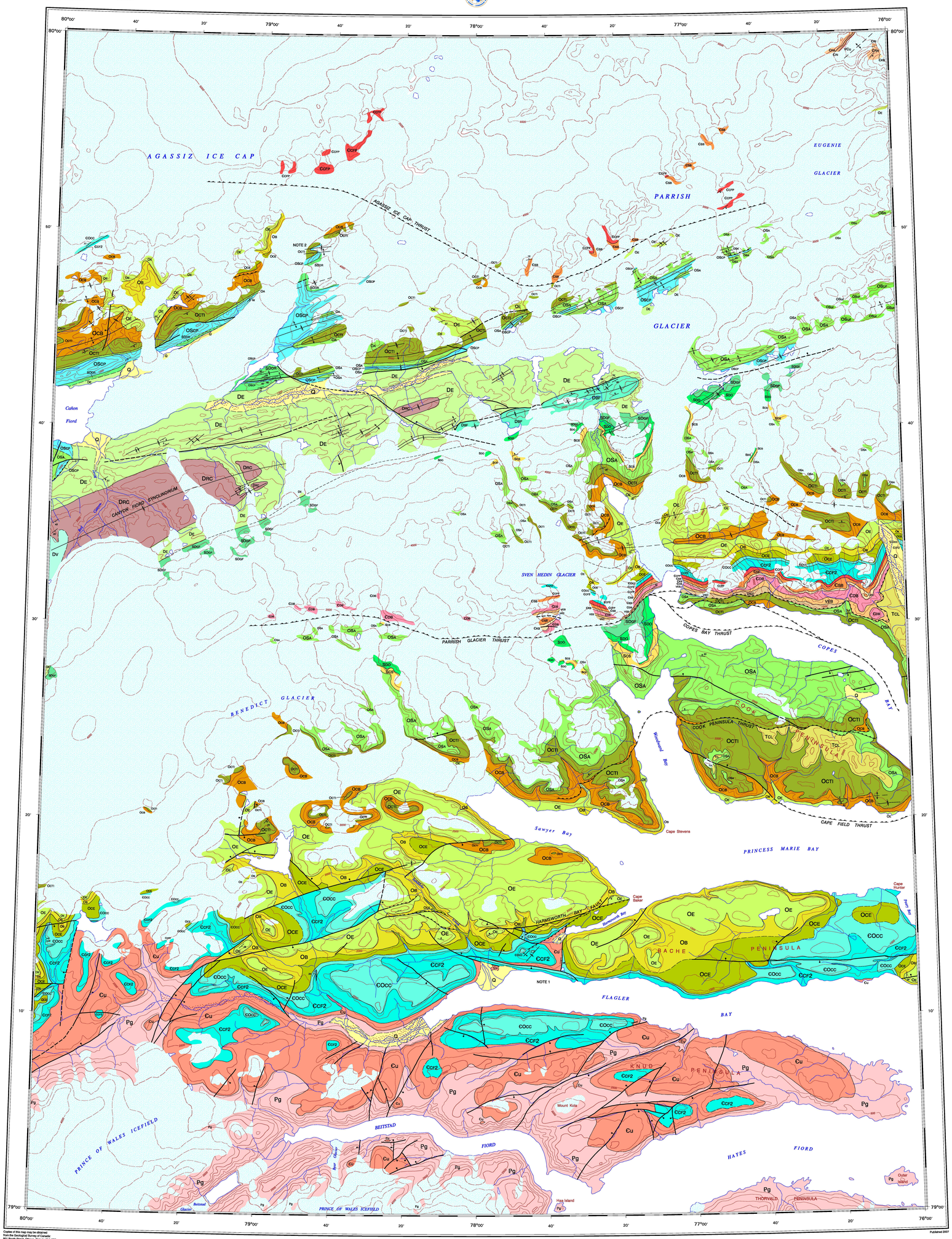
GEOLOGICAL SURVEY OF CANADA | COMMISSION GÉOLOGIQUE DU CANADA



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Geology based on fieldwork by T.A. de Freitas, 1996–1997; and U. Mayr, 1998–1999

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MAP 2103A

GEOLOGY

SAWYER BAY

ELLESMERE ISLAND

NUNAVUT

Scale 1:125 000/Échelle 1/125 000

kilometres 2 0 2 4 6 8 10 kilomètres

Universal Transverse Mercator Projection
North American Datum 1983
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Projection transverse universelle de Mercator
Système de référence géodésique nord-américain, 1983
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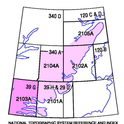
Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

Digital base map from data compiled by Geomatics Canada, modified by DDD

Proximity to the North Magnetic Pole causes the magnetic compass to be useless in this area

Elevations in feet above mean sea level



NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND INDEX TO ADJOINING GEOLOGICAL SURVEY OF CANADA MAPS

Published 2007

LEGEND

MAIN PART OF MAP

CENOZOIC
QUATERNARY

Q — *Gravel, sand, silt and mud.*

PALEOZOIC
TERTIARY (PALEOCENE)

TCL — *CAPE LAWRENCE FORMATION: interbedded conglomerate, sedimentary breccia and sandstone; conglomerate thick-bedded to massive, boulder to granule grade, clasts of limestone, dolostone and minor sandstone; weathers reddish brown.*

LOWER DEVONIAN (EMSIAN)

DBF — *BLUE FIORD FORMATION: medium-bedded limestone, interbedded with shale and minor sandstone; limestone fossiliferous rudstone and argillaceous wackestone.*

LOWER DEVONIAN (PRAGIAN - LOCHKOVIAN)

DE — *EIDS FORMATION: thin-bedded siltstone interbedded with silty shale and sandstone; siltstone green-grey to light olive, flat lamination, some bioturbation in sandy intervals.*

UPPER SILURIAN AND LOWER DEVONIAN (LUDLOW TO ?LOCHKOVIAN)

SDGF — *GOOSE FIORD FORMATION, upper member: limestone, dark grey, silty or sandy, fossiliferous lime mudstone and wackestone; minor sandstone in upper part, member weathers resistant; lower member: grey-green, calcareous shale and/or silty limestone; member weathers recessive.*

ORDOVICIAN–DEVONIAN

OSUr — *ALLEN BAY, CAPE STORM, DOURO AND GOOSE FIORD FORMATIONS undivided, reefal facies: limestone and dolostone interbedded; coral-microbial boundstone, stromatoporoid boundstone, megalodont rudstone, skeletal grainstone; includes reef-slope debris, allochthonous blocks, and beds of finer material of coral-microbial boundstone interbedded with dark grey shale; reef-slope debris facies gradational to Cape Phillips Formation.*

UPPER SILURIAN (LUDLOW)

SDO — *DOURO FORMATION: grey, argillaceous limestone; lime mudstone and fossiliferous wackestone; weathers rubbly.*

SCS — *CAPE STORM FORMATION: medium-bedded dolostone and interbedded minor sandstone; dolostone silty and sandy, calcareous, fine-crystalline; sandstone silty, calcareous, thin-bedded; formation weathers yellow and recessive.*

UPPER ORDOVICIAN TO UPPER SILURIAN (ASHGILL TO LUDLOW)

OSA — *ALLEN BAY FORMATION, upper member: thick-bedded limestone; lime mudstone and minor wackestone, very resistant weathering; middle member: variable dolostone; dolomudstone and wackestone, less coral-microbial boundstone and intraclast conglomerate; lower member: thick-bedded limestone; skeletal wackestone and packstone with burrow mottles.*

MIDDLE AND UPPER ORDOVICIAN (CARADOC AND ASHGILL)

OCTI — *IRENE BAY AND THUMB MOUNTAIN FORMATIONS (part of Cornwallis Group). IRENE BAY FORMATION: argillaceous, nodular limestone; lime mudstone and wackestone, medium-bedded, fossiliferous, nodular; weathers recessive, grey-green; THUMB MOUNTAIN FORMATION: thick-bedded to massive limestone; wacke and packstone, with burrow mottles, fossiliferous in upper part; weathers resistant, dark grey.*

MIDDLE ORDOVICIAN (ARENIG AND DARRIWILLIAN)

OCB — *BAY FIORD FORMATION (part of Cornwallis Group), upper part: medium-bedded dolostone; dolomudstone and dolosiltstone, weathers grey-green, resistant limestone unit at base; lower part: gypsum and anhydrite interbedded with dolomudstone; formation weathers recessive.*

LOWER ORDOVICIAN (ARENIG)

OE — *ELEANOR RIVER FORMATION: thick-bedded limestone; lime mudstone and wackestone with burrow mottles; formation weathers resistant with moderately recessive middle part.*

LOWER ORDOVICIAN (TREMADOC)

OB — *BAUMANN FIORD FORMATION, upper member: interbedded dolostone and gypsum; laminated dolomudstone; middle member: limestone; skeletal grainstone and rudstone; lower member: interbedded gypsum and dolostone.*

OCE — *CHRISTIAN ELV FORMATION: interbedded limestone and dolostone; limestone dolomitic, burrowed lime mudstone, laminated calcisiltite and minor flat-pebble conglomerate; dolostone fine-crystalline; locally abundant thrombolites.*

UPPER CAMBRIAN AND LOWER ORDOVICIAN

COCC — *CAPE CLAY FORMATION: medium- to thick-bedded limestone; lime mudstone and skeletal wackestone, burrow mottles; dolomitic calcisiltite and minor flat-pebble conglomerate; thick-bedded stromatolitic boundstone; formation weathers very resistant.*

UPPER CAMBRIAN

CCF2 — *CASS FJORD FORMATION, middle and upper members: interbedded limestone and dolostone; thin-bedded, thrombolitic and stromatolitic boundstone and abundant intraformational conglomerate; minor yellow, crossbedded sandstone in upper part; purple intervals in lower part; map unit weathers recessive.*

MIDDLE CAMBRIAN

CCFP — *CASS FJORD FORMATION, lower member (Parrish Glacier beds): interbedded limestone and dolostone; medium- and thick-bedded, burrow mottles, laminae, flat-pebble conglomerate; purple intervals; unit weathers moderately resistant.*

LOWER CAMBRIAN

CSS — *SCORESBY BAY FORMATION: thick-bedded dolostone, calcareous, medium-crystalline; some limestone in lower part; formation weathers yellow-orange and resistant.*

CKB — *KANE BASIN FORMATION: interbedded sandstone and siltstone; sandstone fine- to medium-grained, thin-bedded, laminated; minor mudstone in lower part; formation weathers distinctly dark and recessive.*

CDB — *DALLAS BUGT FORMATION: thick-bedded sandstone; medium-grained; minor conglomerate; formation weathers white-rusty, hematitic red and resistant.*

PROTEROZOIC
NEOPROTEROZOIC (VENDIAN)

VEB — *ELLA BAY FORMATION: dolostone and limestone; in upper part dolostone, coarse-crystalline, thick-bedded, weathers resistant; in lower part interbedded dolostone, laminated lime mudstone and sandy calcisiltite; some flat-pebble conglomerate; locally red weathering.*

VKC — *KENNEDY CHANNEL FORMATION: interbedded siltstone and shale: laminated, black, white sheen on weathered surfaces; minor interbedded sandstone; formation weathers recessive.*

Some features on this map have been projected to surface through younger cover of Quaternary sediments, glacier ice, and bodies of water.

Geological boundary (defined, approximate, assumed)

Bedding, top known (overturned, inclined, vertical) 15 15 15

Bedding, estimated from distance (overturned, inclined) 15 15

Thrust fault (defined, approximate; teeth indicate upthrust side)

Fault, undetermined (defined, approximate, assumed; solid circle indicates downthrown side)

Anticline and syncline (defined, approximate)

Anticline and syncline, overturned (defined)

CAÑON FIORD AREA

LOWER DEVONIAN (PRAGIAN AND ZLICHOVIAN)

DV — *VENDOM FIORD FORMATION: conglomerate; boulder grade; overlain by very fine- and fine-grained sandstone; formation weathers recessive, red-brown.*

LOWER DEVONIAN (LOCHKOVIAN AND PRAGIAN)

DRC — *RED CANYON RIVER FORMATION: siltstone and sandstone; sandstone very fine-grained, thick-bedded; formation weathers moderately resistant, red-brown and green.*

LOWER DEVONIAN (LOCHKOVIAN)

DE — *EIDS FORMATION: thin-bedded siltstone interbedded with silty shale and sandstone; siltstone green-grey to light olive, flat lamination, some bioturbation in sandy intervals; middle unit of sandy limestone.*

UPPER SILURIAN AND LOWER DEVONIAN (?PRIDOLI AND LOCHKOVIAN)

SDDIR — *DANISH RIVER FORMATION: very thick-bedded sandstone, calcareous and impure, fine-grained, climbing ripples, flute casts; formation weathers brown.*

UPPER SILURIAN TO DEVONIAN

SDGF — *GOOSE FIORD FORMATION, upper member: limestone, dark grey, silty or sandy, fossiliferous lime mudstone and wackestone, minor sandstone in upper part, member weathers resistant; lower member: grey-green, calcareous shale, and/or silty limestone, member weathers recessive.*

UPPER ORDOVICIAN AND SILURIAN (ASHGILL TO PRIDOLI)

OSCP — *CAPE PHILLIPS FORMATION: interbedded limestone and shale; limestone argillaceous, thick- to thin-bedded, dark grey, weathers light grey, platy.*

UPPER ORDOVICIAN (ASHGILL)

OA — *ALLEN BAY FORMATION: thick-bedded limestone; grey, skeletal wackestone and packstone, dolomitic; intervals of nodular limestone in lower part.*

FLAGLER BAY AREA

LOWER AND MIDDLE CAMBRIAN

CU — *Undivided Cambrian formations*
CAPE WOOD FORMATION: interbedded limestone and dolostone; limestone dolomitic, thick-bedded; dolostone medium-crystalline, medium-bedded; minor flat-pebble conglomerate and sandstone; formation weathers light grey-yellow and accounts for about half of the thickness of the undivided Cambrian unit.
CAPE KENT FORMATION: thick-bedded dolostone, variably crystalline; weathers orange to brown.
POLICE POST FORMATION: medium-bedded dolostone, variably argillaceous and arenaceous; formation weathers recessive, dark, and forms good, thin stratigraphic marker in the coastal cliffs.
CAPE INGERSOLL FORMATION: thick-bedded dolostone, medium- and coarse-crystalline; lower part of formation forms distinct ledge.
CAPE LEIPER FORMATION: medium- to thick-bedded dolostone, medium-crystalline, burrow mottles; rare flat-pebble conglomerate; formation weathers yellow-orange and resistant.
DALLAS BUGT FORMATION: medium- to thick-bedded sandstone, coarse-grained, conglomeratic, crossbedded; formation weathers pale yellow-orange.

PALEOPROTEROZOIC

PG — *Undifferentiated gneiss and granite.*

NORTHEAST CORNER OF MAP

LOWER CAMBRIAN

CRA — *RAWLINGS BAY FORMATION: thin- to thick-bedded sandstone, quartz arenite, fine- to coarse-grained, crossbedded, Skolithos burrows, weathers light grey to pink; interbeds of thin-bedded siltstone, yellow to rusty weathering; interbeds of dark grey mudstone.*

CRI — *RITTER BAY FORMATION: dark grey shale and slate, locally silty, laminated; formation weathers dark and recessive.*

PROTEROZOIC
NEOPROTEROZOIC (VENDIAN)? AND LOWER CAMBRIAN

VCU — *Undifferentiated unnamed formation; facies not known.*

NOTES

1. Along the north side of Flagler Bay and along the valley west of Flagler Bay the evaporite deposits of Baumann Fiord Formation are locally absent. Additionally, significant thickness changes of the Baumann Fiord Formation occur in the southern part of the map area.
2. Map unit OCTI may include thin Allen Bay Formation in the area north of the head of Cañon Fiord.

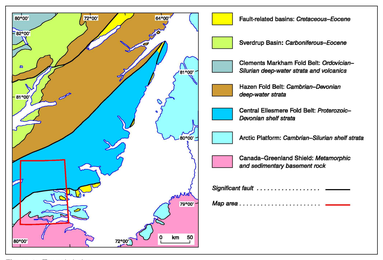


Figure 1: Tectonic index

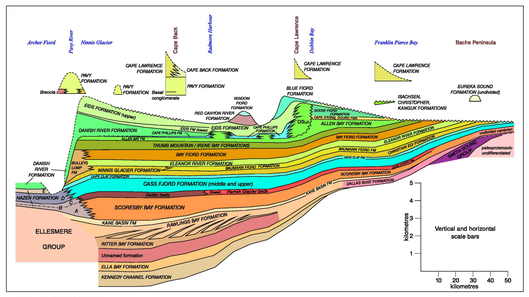


Figure 2: Stratigraphic index

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