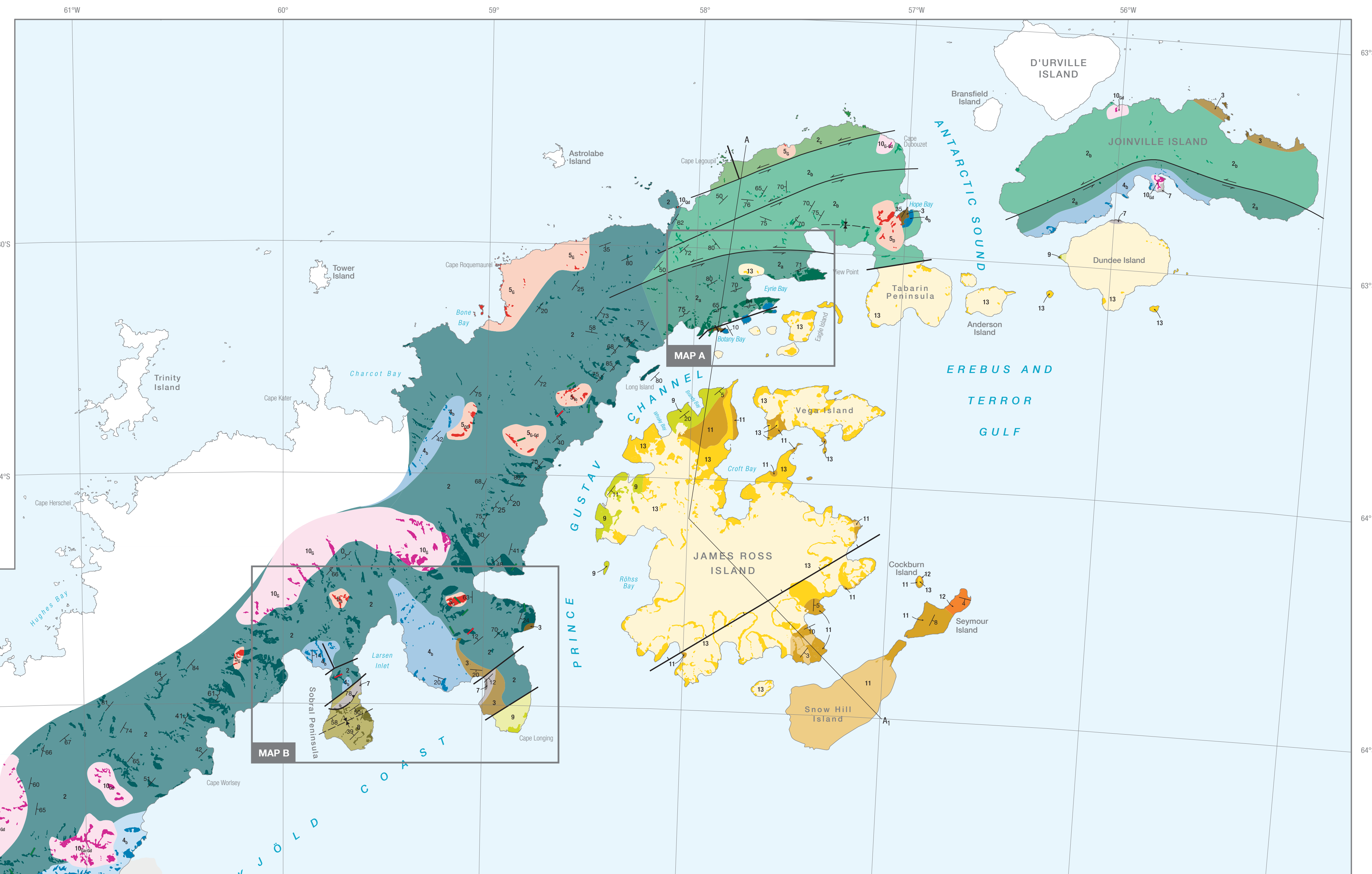
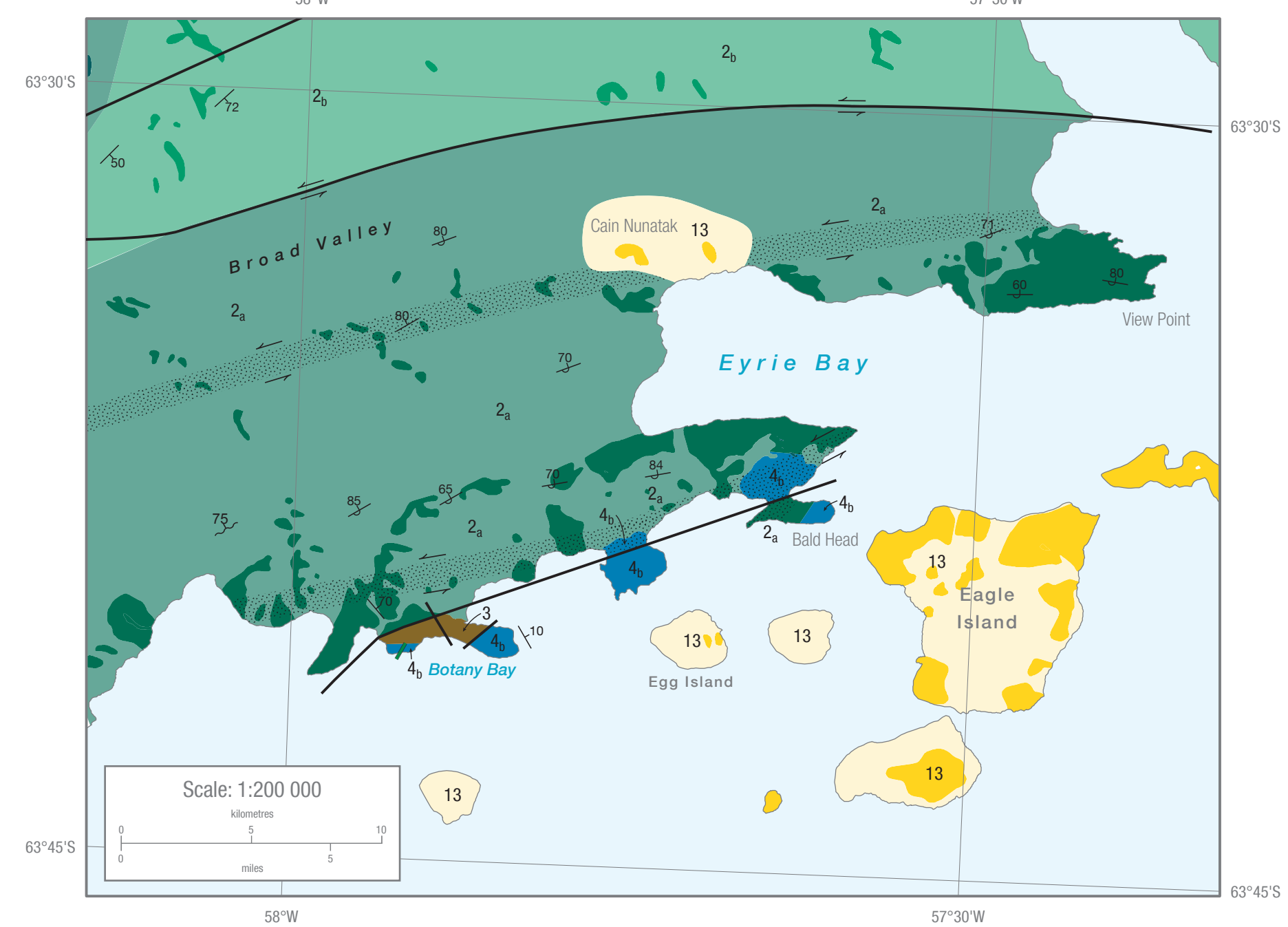


MAP A: GEOLOGY OF THE REGION AROUND BOTANY BAY



British Antarctic Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

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1:625 000 Scale

Geological Map of Eastern Graham Land, Antarctic Peninsula

BAS GEOMAP 2 Series, Sheet 1, Edition 1

Geological interpretation and map compilation by TR. Riley, M.J. Flowerdew, and C.E. Haselwimmer. Geological cross sections compiled by TR. Riley and C.E. Haselwimmer. Data preparation, digital cartography, design, and layout by C.E. Haselwimmer. Geological mapping and digital map production was undertaken as part of the BAS Environmental Change and Evolution (ECE) programme.

Basic map data for coastlines, rock outcrops, and ice shelves from the Antarctic Digital Database. The Antarctic Digital Database is copyright © 1993-2008 Scientific Committee on Antarctic Research.

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Projection: WGS 1984 Antarctic Polar Stereographic, Central Meridian: 60°W, Spheroid: WGS84. Latitude of true scale: 71°S.

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GEOLOGICAL LEGEND

Geological units are coloured as dark and light tints representing exposed (nunataks) or inferred geology (under ice or snow)

PERIOD	EPOCH/AGE	VOLCANIC AND SEDIMENTARY ROCKS	PLUTONIC AND METAMORPHIC ROCKS
NEOGENE	Miocene	James Ross Island Volcanic Group Recent basic volcanic lavas, tuffs, hydrothermal breccias. Exposed widely in northern Graham Land, particularly James Ross Island and Tabarin Peninsula area.	
	Paleocene	Seymour Island Group Richly fossiliferous, shallow water Paleocene - Eocene fine grained volcaniclastic sedimentary rocks restricted to Seymour Island and Cockburn Island.	
CRETACEOUS	Late	Marambio Group Fossiliferous, shallow water Upper Cretaceous - Lower Paleocene including the K1 boundary fine grained volcaniclastic sedimentary rocks exposed widely on Seymour, James Ross and Vega islands.	Cretaceous Plutonism Locally granodioritic - gabbro hybrid plutons with outcrop widely. Exposed on ages of 85 - 105 Ma. Associated with dolerite dyke intrusion.
	Early	Gustav Group Mid Cretaceous coarse grained volcaniclastic rocks up to 2.5 km thickness exposed extensively on western James Ross Island, with minor outcrops at Cape Longing and Robertson Island. Deep water environment with sporadic microfossils.	Granitic Gabbro Granitic Gabbro plutons. G. quartz monzonitic; G. quartz monzonitic; G. quartz monzonitic; G. quartz monzonitic.
JURASSIC	Late	Nordenskiöld Formation Reddish-brown mudstones and interbedded tuffs of Kimmeridgian - Berriasian age. Exposed at scattered locations along the eastern margin of the Sobral Peninsula and Joinville Island of Graham Land reaching a maximum thickness of 800m.	Jurassic Plutonism Jurassic plutonism of dominantly granite-felsic to quartz monzonitic composition. Possible sub-volcanic equivalents of the Early - Middle Jurassic silicic volcanic rocks. Associated with felsic dyke/shaft intrusion.
	Early	Cape Frammes Beds Coarse grained sandstones containing a Kimmeridgian - early Tithonian molluscan macrofauna. Only exposed at Cape Frammes on Jason Peninsula. Probable basal strata of the Larsen Basin.	Granitic Gabbro Granitic Gabbro plutons. G. quartz monzonitic; G. quartz monzonitic; G. quartz monzonitic; G. quartz monzonitic.
TRASSIC / PERMIAN	Mid	Maple Formation and Kenney Glacier Formation Subsaharan-type granitic, crystalline, felsic - alkali-felsic and rare plagioclase lava flows. At least 10m thick, exposed extensively along the east coast. Dated in the interval 167 - 171 Ma, interbedded with Botany Bay Group (3) at the base of the succession.	
	Early	Standing Inlet Basalts Basaltic and basaltic andesite lava flows. They predominate and are coeval with silicic volcanic rocks of the region (4b). Only exposed on Jason Peninsula at Standing Inlet and Stratos Inlet.	Trassic plutonism and migmatites Extensive plutonism and migmatitization in southern Graham Land and northern Palmer Land at 227 Ma and 233 - 238 Ma. This event may have continued until ~215 Ma.
CARBONIFEROUS / DEVONIAN / ORDOVICIAN	Mid	Botany Bay Group Tertiary, plant bearing sedimentary rocks exposed at several locations along the east coast. Four formations (Mount Fm, Snow Hill Fm, Deer Peak Fm, Mayhew Fm) have been identified. The upper part of the succession is coeval with the Graham Land Volcanic Group (4).	Permian metamorphism Permian - Triassic in age, confirmed by Trassic diorites at Cape Legouipi.
	Early	Legouipi Formation Triassic plutonism and migmatitization in southern Graham Land and northern Palmer Land at 227 Ma and 233 - 238 Ma. This event may have continued until ~215 Ma.	Ordovician - Carboniferous crystalline basement Early Carboniferous (484 - 487 Ma) diorite gabbros on the Eden Glacier, Devonian (393 - 397 Ma) orthogneiss and Carboniferous (327 ± 9 Ma) at Target Hill.

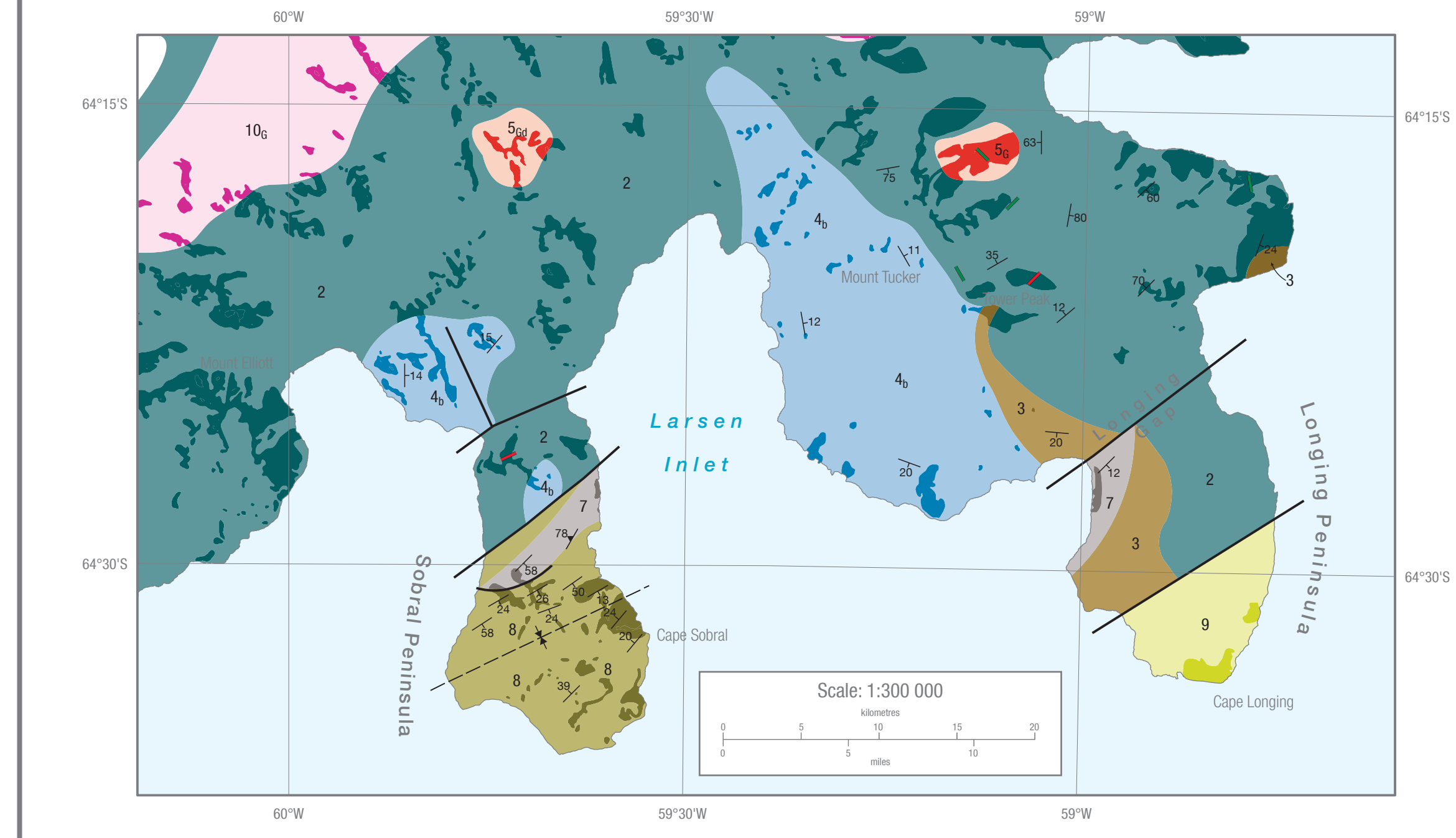
GEOLOGICAL SYMBOLS

Fault	Bedding	Fault breccia
Strike-slip fault	Overturned bedding	Mafic dykes
Normal fault (tick on downthrow side)	Contorted bedding	Felsic dykes
Fold axis of synform	Cleavage or metamorphic foliation	

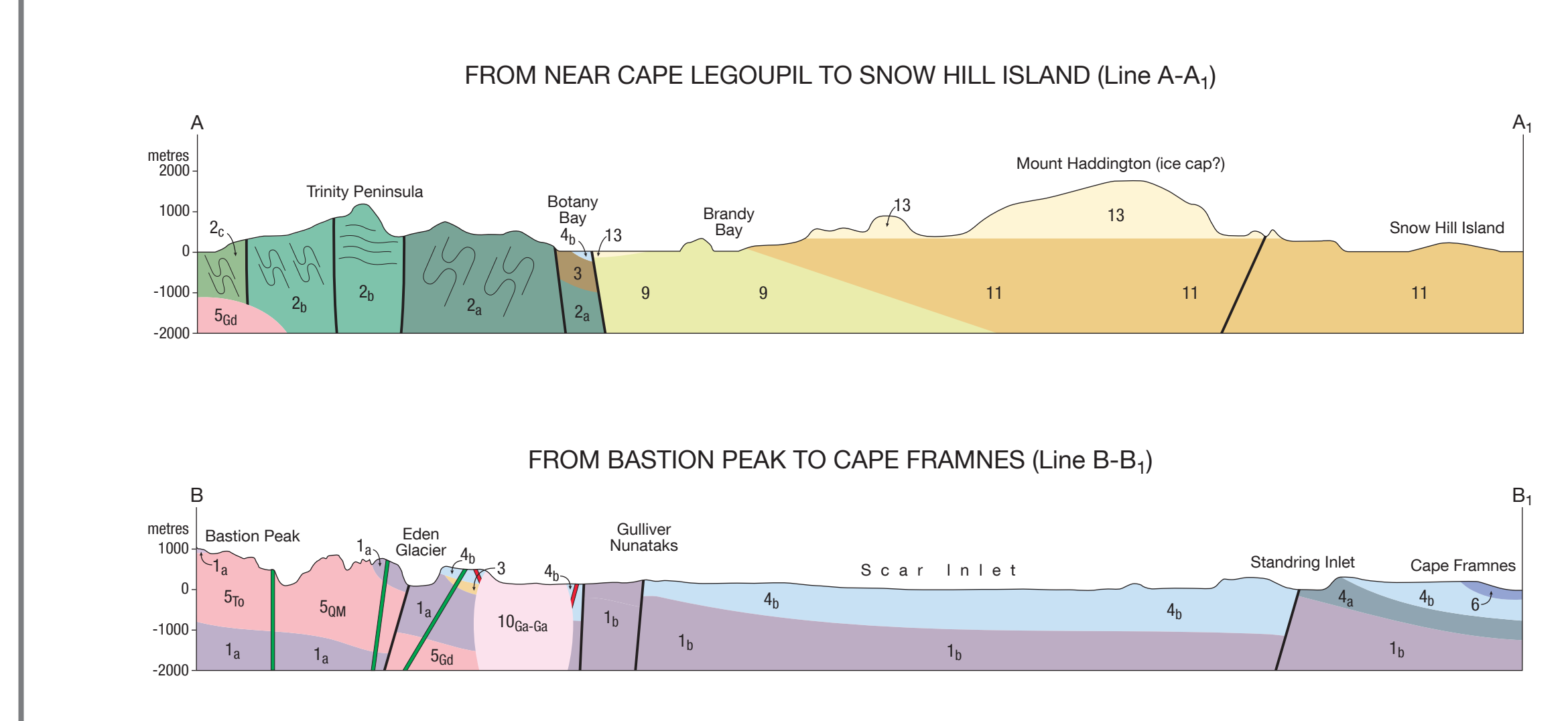
OTHER SYMBOLS

Coastline	Ice shelf	Sea
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MAP B: GEOLOGY OF THE REGION AROUND THE SOBRAL AND LONGING PENINSULAS



GEOLOGICAL CROSS SECTIONS ALONG THE LINES DRAWN ON THE MAP
Horizontal scale 1:625 000 Vertical exaggeration x 5



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