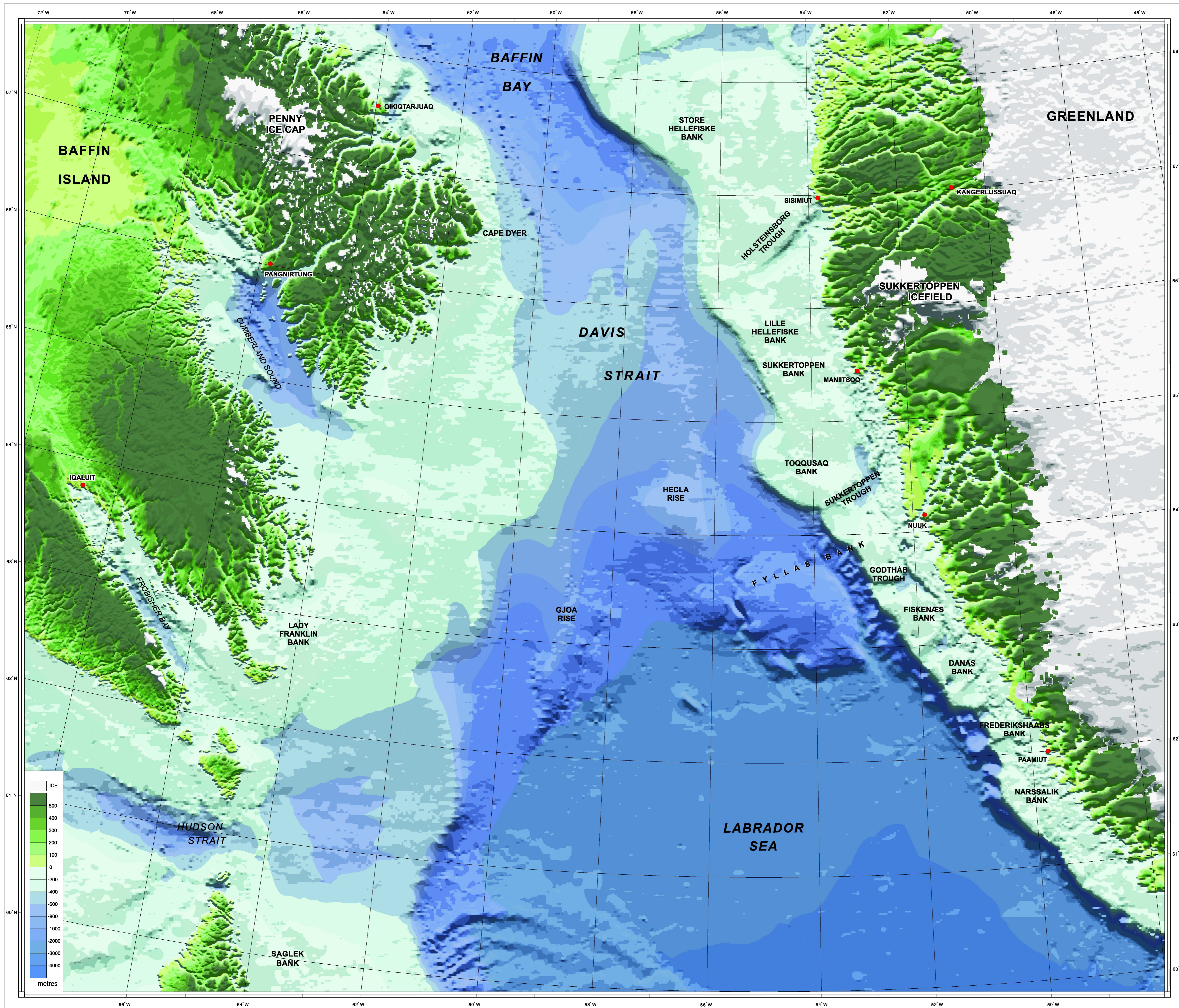




Physiography of the Davis Strait Region



The map shows a shadow-illuminated image of combined topographic and bathymetric Digital Terrain Models (DTM) featuring southeastern Baffin Island, Davis Strait and southern West Greenland. This false coloured image is illuminated from the north with colour changes representing contours of elevation or bathymetric depth. The distribution of ice, shown in white, has been defined with a gridded mask for Greenland (Eklöf, 1996) and polygons for Canada (Digital Chart of the World, 1992). The Physiographic Regions for southeastern Baffin Island and the northern tip of Labrador shown below are based on Sanford et al. (1976) and for the continental shelf of Greenland, the geographic names of Ghisler (1990) are employed.

The physiography of the Davis Strait area generally reflects differences in bedrock geology and structures, which influence different styles of erosion (Sempels, 1982). The land areas are dominated by Precambrian igneous and metamorphic rocks that generally exhibit a rugged relief. The topography of Baffin Island has the highest elevation along its eastern edge and slopes gently westward. Ice coverage is generally confined to isolated topographic highs with only one significant glacier, the Penny Ice Cap. On Greenland the vast inland ice masks the onshore physiographic features. The only significant outlier of the inland ice is the Sukkertoppen icefield. The ice free land area of Southwest Greenland is between 50 and 150 km wide with broad topographic highs exceeding 500 m. These highs are punctuated by irregular glacially scoured valleys generally corresponding with geological boundaries within the Archaean terrane. North of 67° these valley systems have a predominant east-west orientation following the fabrics of reworked Archaean gneisses.

The highlands of southeastern Baffin Island are divided by the glacially affected Frobisher Bay and Cumberland Sound. Separating Baffin Island from Labrador is the deep Hudson Channel. Onshore and offshore, the effects of glaciation are well defined in West Greenland, where several deeply eroded coastal fjords can be traced seaward across the continental shelves. The Davis Strait Sill is a bathymetric high (generally less than 500 m) between southern Baffin Island and West Greenland. The sill is a complex bathymetric feature with several offset bathymetric highs. These highs control the flow of water between Baffin Bay and Labrador Sea, and form part of the waterway that connects the Arctic and the Atlantic Oceans (Piper et al., 1990). Adjacent to Greenland, the sill is cut by a deeper water channel (~700 m) that divides the flow around the Hecla Rise. The other notable bathymetric highs along the southern edge of Davis Strait are the Gjoa Rise and a second deep-water plateau adjacent to Fyllas Bank. From the mouth of the Hudson Channel, deep scours in the slope are part of a complex dendritic drainage system extending to the centre of Labrador Sea and feeding into the North Atlantic Mid Ocean Channel (NAMOC) (Hesse et al., 1999).

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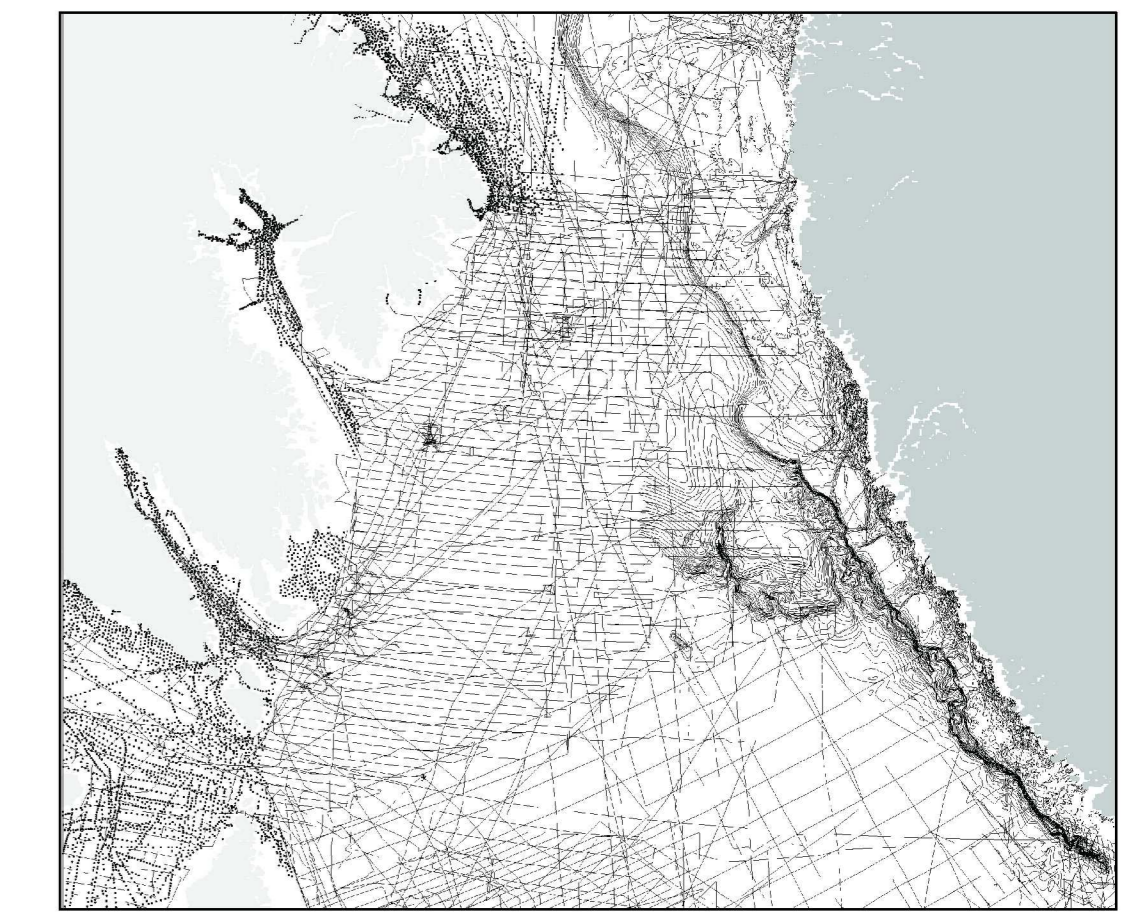
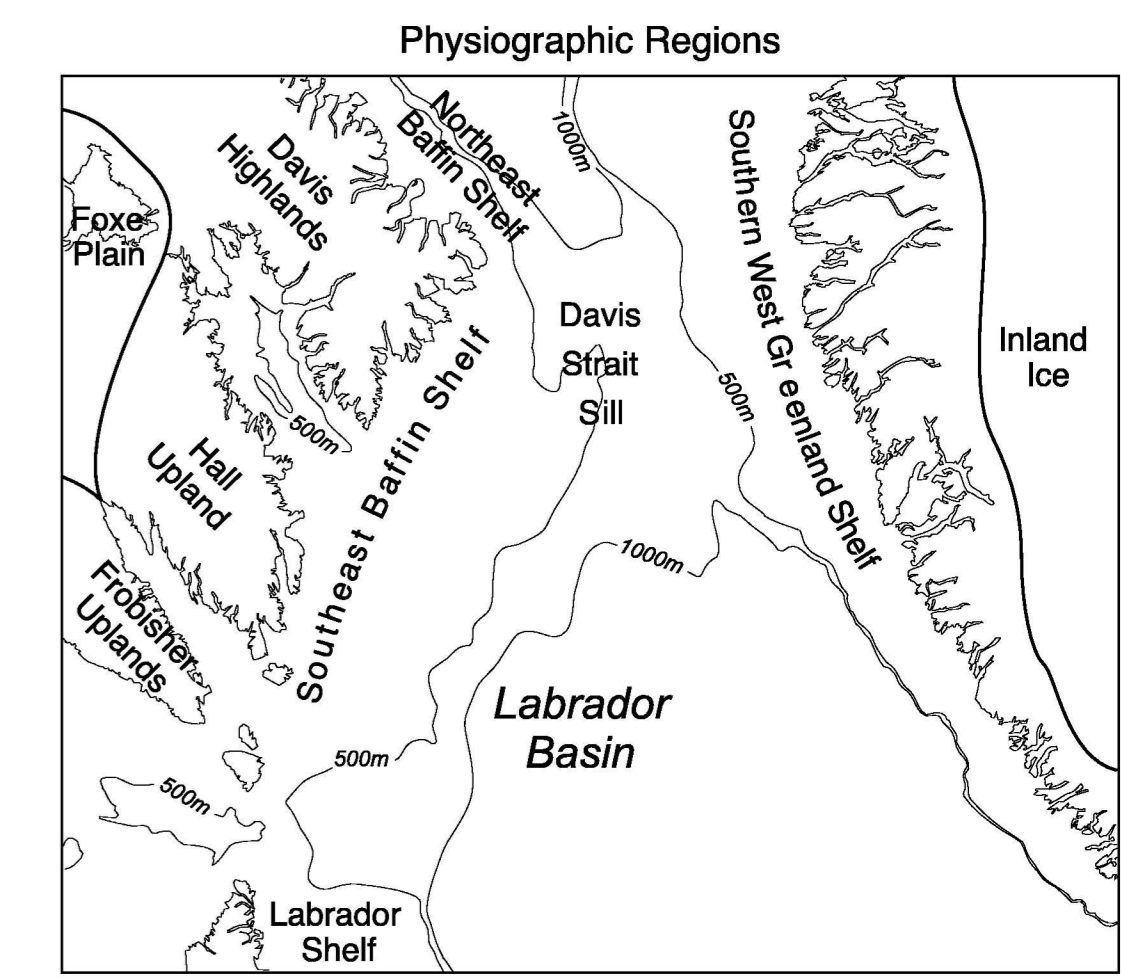
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30 arc second grid, GTOPO30 (USGS)
.01 x .025 degree grid (KMS)
Bathymetric points, tracks and contours (GSC, GEUS)

Data Sources
Topographic data for Greenland were provided by Kort & Matrikelstyrelsen (KMS) of Denmark at a 0.01° x 0.025° grid (~1 km) (updated from Eklöf, 1996). Data for the Canadian land areas were provided by the United States Geological Survey (GTOPO30, 1999), as a 30 arc second grid (~1 km). The areas were regrided to a 1 km resolution.

Bathymetric data points were assembled from a combination of the Geological Survey of Canada's National Gravity Database and Marine Surveys databases. Digital bathymetric contours for the shelf and slope of West Greenland were provided by the Geological Survey of Denmark and Greenland (GEUS) (Henderson, 1975). Bathymetric depths were standardized using a conversion of 1463 m/s. The adjusted point observations were gridded at a 2 km resolution, using a spline interpolation method (Smith and Wesel, 1990), and finally regrided to 1 km for merging with the topographic DTM. In most coastal regions data are sparse and the topography of the seafloor is poorly constrained. In these areas, extrapolated bathymetric values were used to fill the gap.

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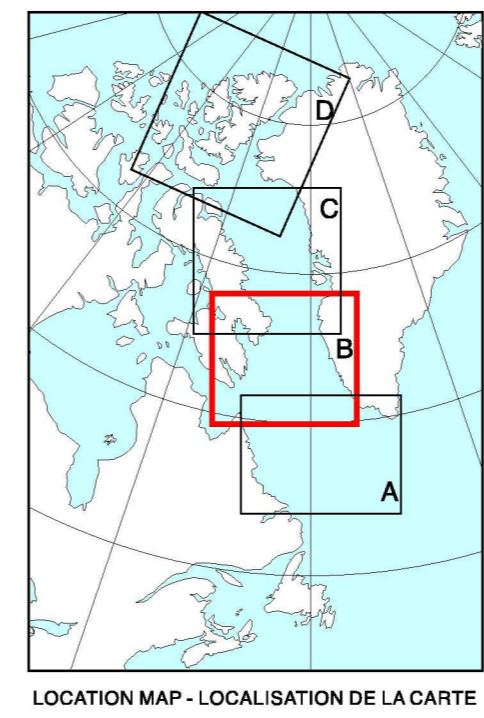
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Copy of this map can be obtained from the Geological Survey of Canada (Atlantic) P.O. Box 1000, Dartmouth, Nova Scotia, Canada, B7Y 4A2. email: geobase@gs.c.gc.ca web: http://geowebwww.sbc.ns.ca

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**PHYSIOGRAPHY
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Scale 1:1 500 000 - Échelle 1/1 500 000
kilometres 25 0 50 100 150 200 kilometres
Lambert Conformal Conic Projection
Standard Parallels 60° N and 74° N. CM = 85° W
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This map is one of a set of four (GSC Open file 3933A-D) covering the physiography of the Canadian and Greenland Arctic.
Open File 3933A: Physiography, Labrador Sea Region
Open File 3933B: Physiography, Davis Strait Region
Open File 3933C: Physiography, Baffin Bay Region
Open File 3933D: Physiography, Inuitian Region

Physiography of the Davis Strait Region
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