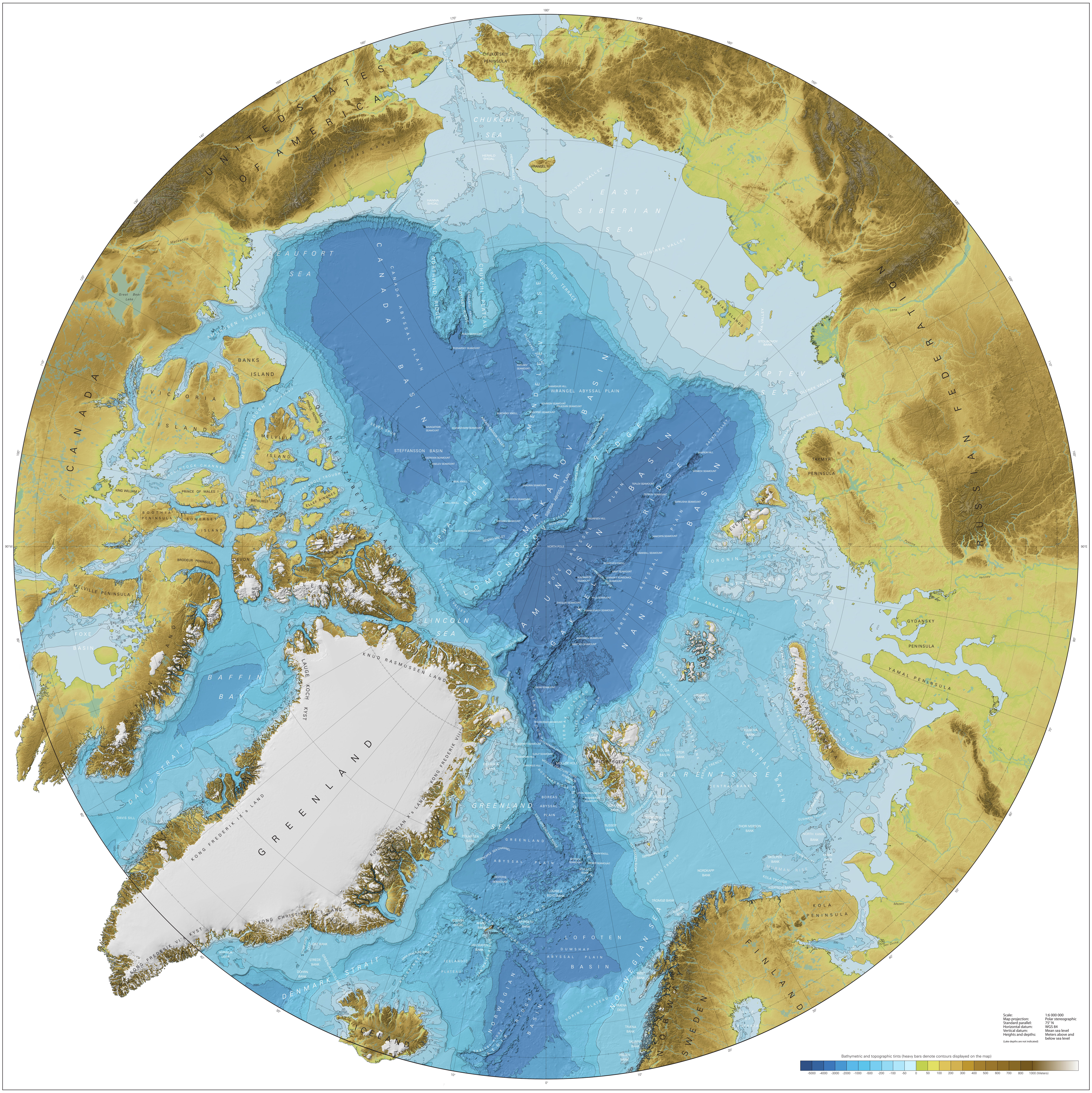
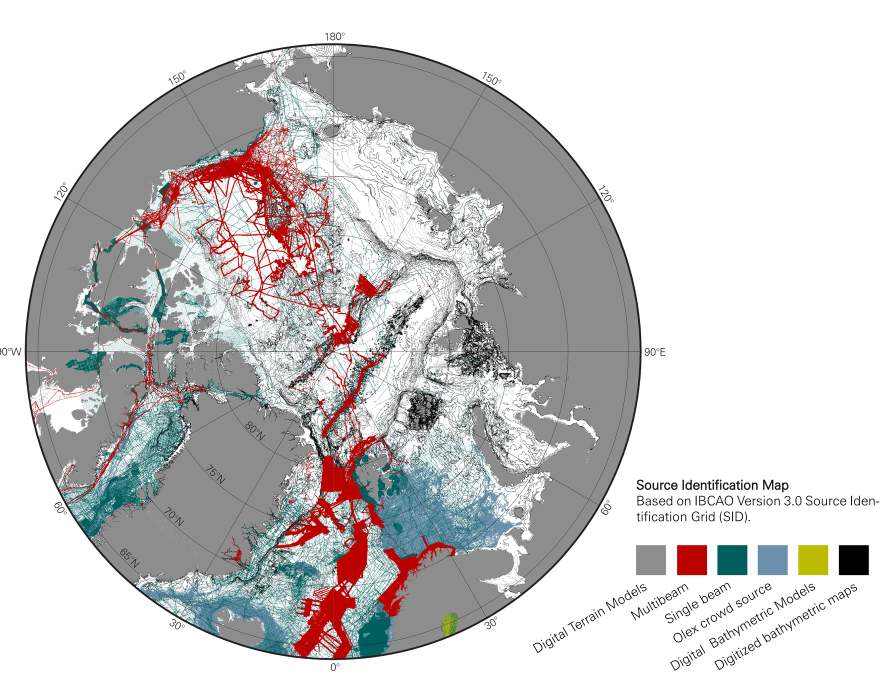


THE INTERNATIONAL BATHYMETRIC CHART OF THE ARCTIC OCEAN (IBCAO)



Source Identification Map
Based on IBCAO Version 3.0 Source Identification Grid (SID).

Map Production and Background

This map is a modern version of Sheet 5.17 of the General Bathymetric Chart of the Oceans (GEBCO). The map has been constructed within the International Bathymetric Chart of the Arctic Ocean (IBCAO) project that was initiated 1997 in St Petersburg, Russia. IBCAO has so far engaged the volunteer efforts of experts in seafloor mapping from 11 countries: Canada, Denmark, Germany, Iceland, Italy, Norway, Russia, Spain, Sweden, United Kingdom and the USA. IBCAO forms a regional effort under GEBCO, in turn operating under the joint auspices of the Intergovernmental Oceanographic Commission (IOC) of UNESCO and the International Hydrographic Organization (IHO).

First proposed at the VII International Congress on Geography held in 1899 in Berlin, GEBCO was established in 1903 under the direction of Prince Albert I of Monaco. It was intended that bathymetric data from all cruises and expeditions, regardless of their national origin, would be brought together in one series of maps covering the entire world ocean. That intent was realized when oceanographic and hydrographic organizations and institutions, governments and commercial entities, and academia supplied the data on which five printed editions of GEBCO were produced between 1903 and 1982.

Bathymetric Sources and Compilation Methods

This map is based on the IBCAO Version 3.0 gridded digital bathymetric model with a cell size of 500 x 500 m on a Polar Stereographic projection. The gridding compilation methods along with details of the bathymetric source data are described in Jakobsson et al. [2012]. In summary, the bathymetric source data used in the construction of IBCAO Version 3.0 grid consist of historic and recent under-ice soundings collected by submarines of the United States and the United Kingdom, historic and recent observations collected on icebreakers and ice camps, and information portrayed in published navigation and compilation charts. A generalized source identification map is shown in this legend. Although extensive, in some areas the database of digital trackline and spot observations contained critical gaps that had to be augmented with information that was only available on paper maps and charts.

The area of the Arctic Ocean covered by modern multibeam surveys in IBCAO Version 3.0 amounts to about 11 %. In the central Arctic Ocean, original observations were augmented with contour information derived from a map published by the Russian Federation Navy [Naryshkin, 2001]. Similarly, contours extracted from maps published by the Geological Society of America [Perry et al., 1986; Cherkis et al., 1991; Matishov et al., 1995] were used in Bering Strait and in the Barents and Kara Seas. On the continental shelf adjacent to Siberia, soundings were extracted from a suite of navigational charts published by the Russian Federation Navy, and used to develop contours. Contours were extracted from the GEBCO Digital Atlas (GDA) [Intergovernmental Oceanographic Commission, International Hydrographic Organization, and British Oceanographic Data Centre, 1997] to supplement the database in the southern Norwegian-Greenland Seas, in Baffin Bay, and in some areas of the Canadian Arctic. Land relief was derived from Global Multi-resolution Terrain Elevation Data 2010 (GMTED2010) [Danielson and Gesch, 2011], with the exception of Greenland, where the model developed by the Danish National Survey and Cadastre (KMS) was used [Ekholm, 1996]. Coastline definition was provided by the World Vector Shoreline (WVS) in all areas except Greenland and northern Ellesmere Island, where an updated coastline was available from KMS.

Grid Availability

The grid that was used for the construction of this map can be obtained in two forms: Cartesian with a cell size of 500 x 500 m on a Polar Stereographic projection, and Geographic with a cell size of 30 x 30 arc seconds of latitude respective longitude. These grids, along with detailed descriptions of their formats and the techniques employed in their preparation, can be downloaded from the IBCAO web site at: http://ibcao.org/

Undersea Feature Names

Undersea feature names labeled on this map are from the GEBCO Sub-Committee on Undersea Feature Names (SCUFN) digital gazetteer. Names of seas are from the IHO publication S-23, Limits of Oceans and Seas (Draft 4th Edition, 2002).

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General Bathymetric Chart of the Oceans
GEBCO

This map is a product of IBCAO Editorial Board
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United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission