

# History of the General Bathymetric Chart of the Oceans (GEBCO)



## Origins of the GEBCO chart series

Soundings and contour lines first appeared on charts during the 16th century. By the middle of the 19th Century bathymetric contour charts were becoming more frequently produced. However, there was a lack of agreement on the nomenclature and terminology used on the charts. To help resolve this, in 1899 the International Geographic Congress setup a Commission on sub-oceanic nomenclature – which would also be responsible for the publication of a general bathymetric chart.



HSH Prince Albert I of Monaco

The Commission, made up of eminent scientists of the day, met in Wiesbaden in 1903, with HSH Prince Albert I of Monaco in the chair. Since the middle of the 1880s Prince Albert had been engaged in oceanographic expeditions in the Mediterranean Sea and Atlantic Ocean in his yachts *Hirondelle* and *Princesse-Alice*. The group adopted the recommendations made by Prof. Julien Thoulet and Prince Albert offered to fund and organise the production of the global chart series.

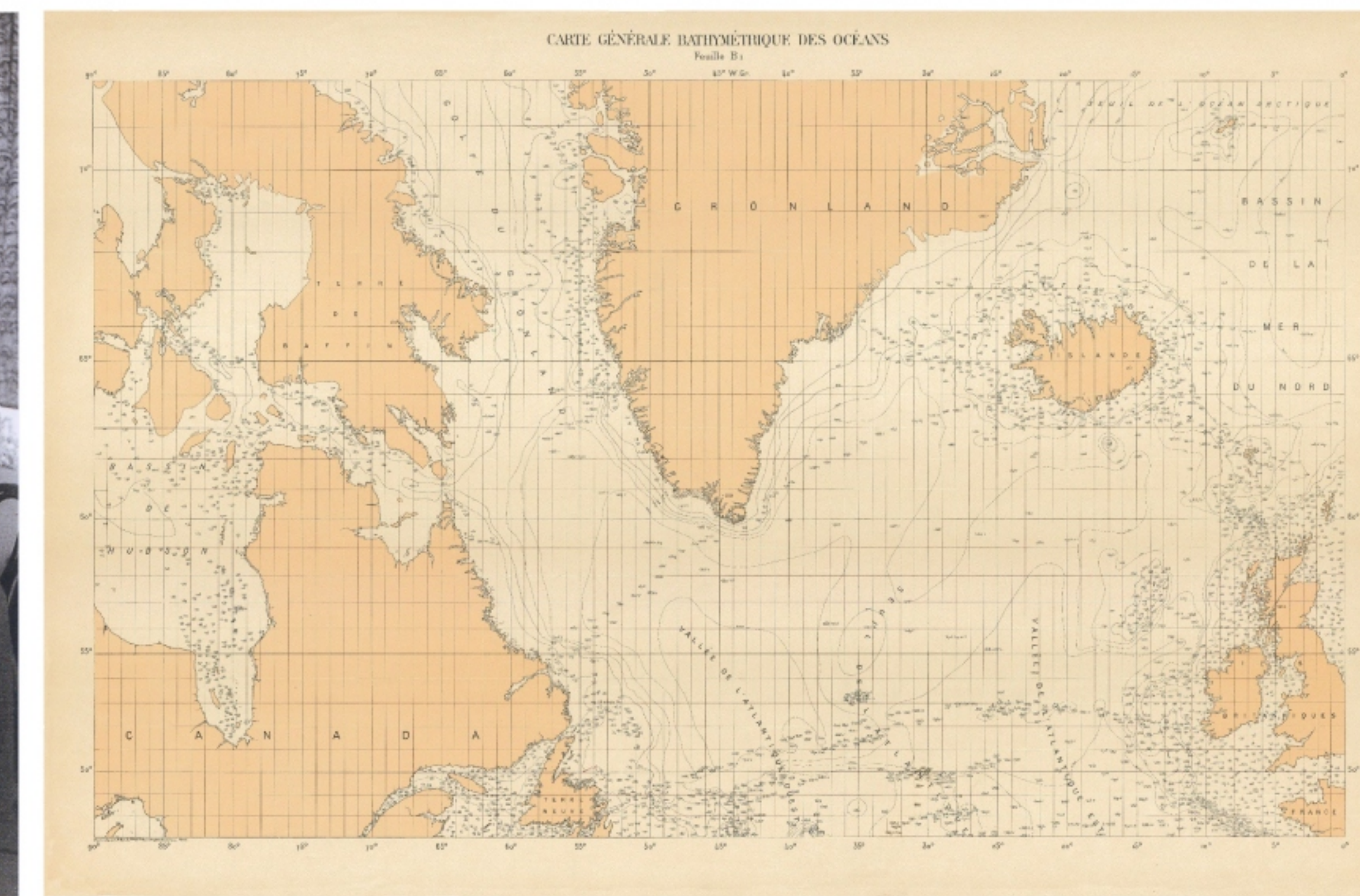
The 24 sheets of **Carte générale bathymétrique des océans** were printed in Paris in 1905.

A second edition of GEBCO was compiled and printed between 1912 and 1931 with contour lines representing the terrestrial relief and a revised nomenclature. The use of sonic and ultrasonic devices increased the amount of data tremendously. For the third and fourth editions there was a major change in

organisation. Following the death of Prince Albert in 1922, his scientific team was disbanded and by 1929 the International Hydrographic Bureau were invited to take over the project. Delays in completing the chart series were caused by World War II and by 1972 only certain



The founding meeting of GEBCO, in 1903, led by HSH Prince Albert I of Monaco. Image courtesy: Collection Musée océanographique de Monaco



Sheet B I (N) from the GEBCO 1st Edition (1905)

sheets of these editions were published.

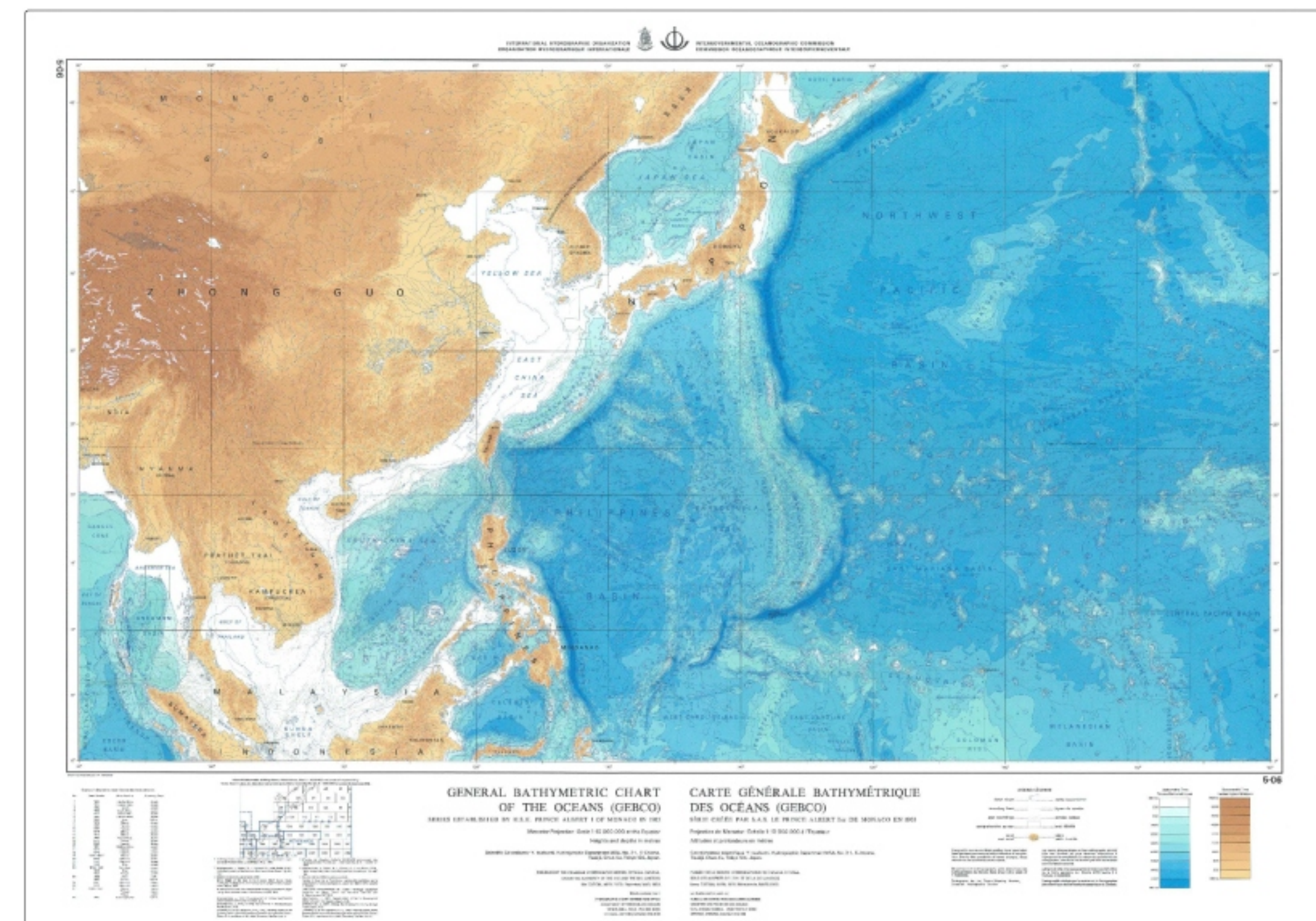
## Change of direction - the GEBCO 5th Edition

In the early 1970s, following recommendations by the Scientific Committee on Oceanic Research (SCOR), it was decided to modernize the whole chart series and bring in the expertise of the scientific community to meet the needs of present day users. Along with the International Hydrographic Organization (IHO), the Intergovernmental Oceanographic Commission (IOC) of UNESCO was invited to cosponsor a GEBCO 5th Edition, thereby bringing scientists and hydrographers together. The **Joint IOC-IHO Guiding Committee for GEBCO** was established in November 1973.

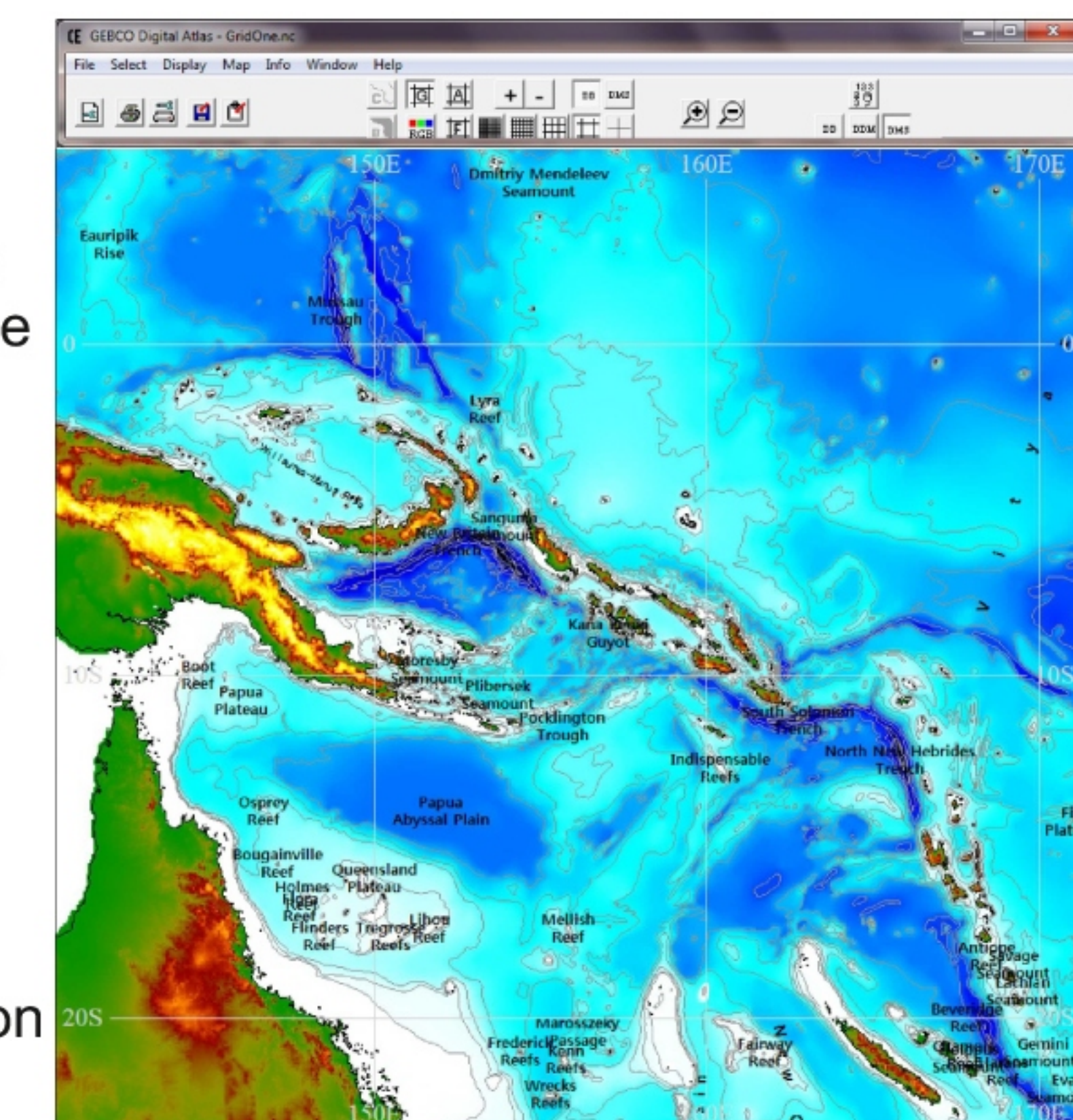
Once this new structure was in place, the GEBCO Guiding Committee was then in a position to offer marine geoscientists around the world the possibility of publishing their work in a prestigious, high-quality chart series. World coverage on the original scale of 1:10 million was completed and published by 1982 - as the GEBCO 5th Edition.

## GEBCO's role in sea floor terminology

In anticipation of the GEBCO 5th edition, the Guiding Committee setup a sub-committee to oversee the standardization of sea floor topographic name usage on GEBCO charts. This group now operates as the GEBCO Sub-Committee on Undersea Feature Names (SCUFN) and maintains and makes available a gazetteer giving the name, generic feature type, geographic location and extent of features on the sea floor.



Sheet 5.06 from the GEBCO 5th Edition



Screen shot from the GEBCO Digital Atlas - showing GEBCO's gridded bathymetric data, bathymetric contour and undersea feature name data sets.

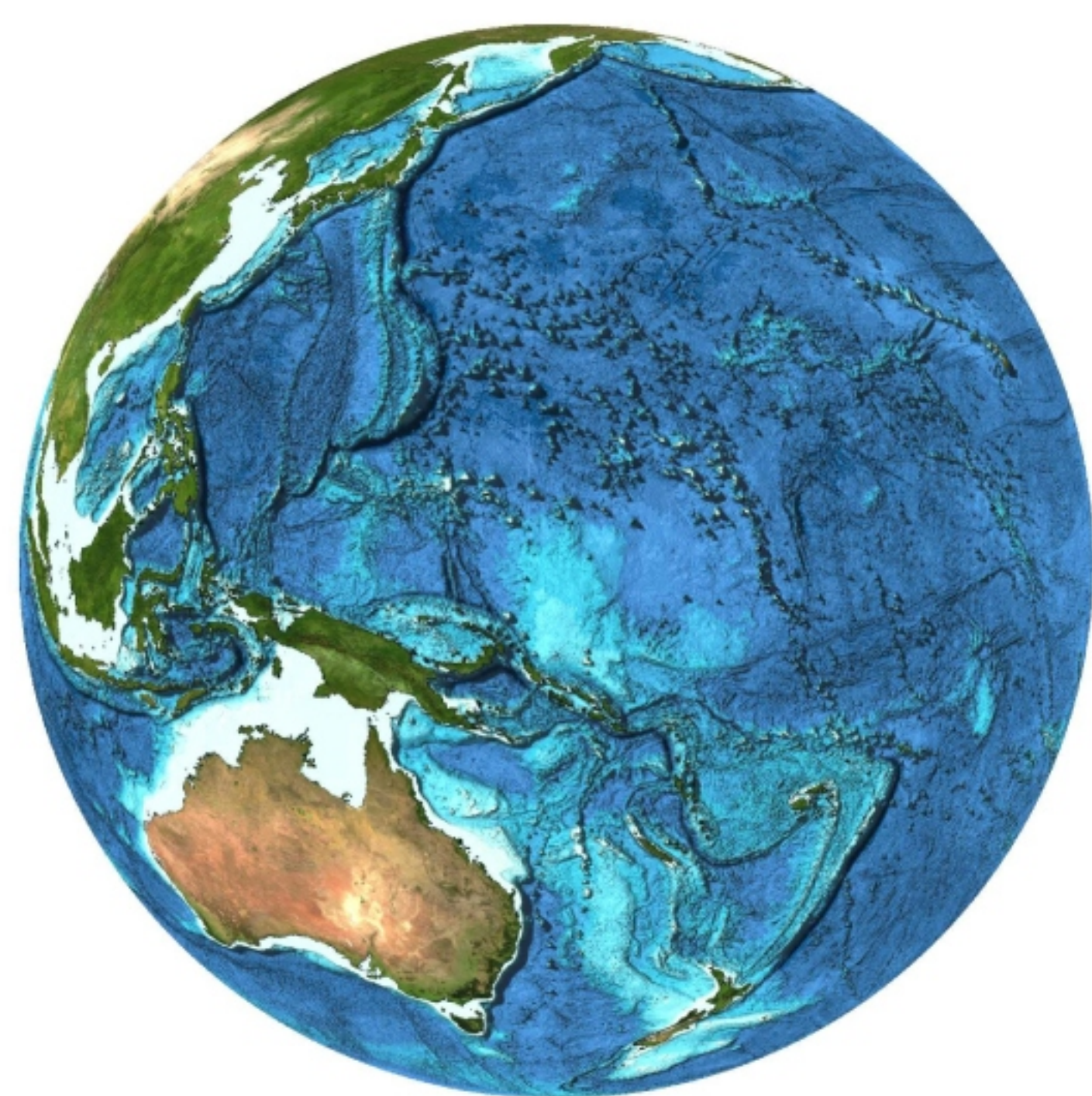
## Entering the digital era

To create a digital base for the updating of GEBCO, and to provide a more flexible product for users, the GEBCO Guiding Committee decided that the printed sheets of the 5th Edition should be digitised and published on CD-ROM. This led to the development of the **GEBCO Digital Atlas** (GDA) – a collection of GEBCO's digital data sets and data viewing and access software. It was first released in 1994 and represented the first seamless, high-quality, digital bathymetric contour chart of the world's oceans.

## Modelling the sea floor in 3D — development of GEBCO's gridded bathymetric data sets

Recognising the importance of the availability of gridded bathymetric data sets for applications such as ocean modelling work, GEBCO released its first global bathymetric grid, the GEBCO One Minute Grid, in 2003. This data set is at one arc-minute intervals and is largely based on the bathymetric contours contained within the GEBCO Digital Atlas. In 2009, GEBCO released the GEBCO\_08 Grid a global grid at 30 arc-second intervals. The grid was generated by combining quality-controlled ship depth soundings with interpolation between sounding points guided by satellite derived gravity data. An updated version of the grid was released in 2010.

GEBCO's latest global bathymetric grid at 30 arc-second intervals is the **GEBCO\_2014 Grid**, released in December 2014. This grid uses the latest GEBCO\_08 Grid as a base but also draws on regional mapping expertise by including data sets from a number of regional mapping projects. GEBCO's grids can be downloaded from the internet: [www.gebco.net/data\\_and\\_products/gridded\\_bathymetry\\_data/](http://www.gebco.net/data_and_products/gridded_bathymetry_data/)



Imagery generated from the GEBCO\_2014 Grid

## GEBCO today

Today GEBCO's aim is still to provide the most authoritative publicly-available bathymetry of the world's oceans. Our work is directed by the GEBCO Guiding Committee and supported by sub-committees on ocean mapping and undersea feature names plus ad hoc working groups. We are a non-profit making organisation which relies largely on the voluntary contributions of an enthusiastic international team of geoscientists and hydrographers. GEBCO operates under the joint auspices of the IHO and IOC.

We produce a range of bathymetric data sets and products: **global gridded bathymetric data sets** a **global set of digital bathymetric contours**; the **GEBCO Gazetteer of Undersea Feature Names**; the **GEBCO Digital Atlas**; the **GEBCO world map** and the **IHO-IOC GEBCO Cook Book**— a reference manual on how to build bathymetric grids.

Through funding provided by the Nippon Foundation, based in Tokyo, Japan, GEBCO has been involved in training a new generation of ocean bathymetrists through the **Postgraduate Certificate in Ocean Bathymetry (PCOB)**. This 12 month course has been held at the University of New Hampshire (UNH), USA since 2004. Since it began, 70 scholars have graduated from the course, representing 33 coastal states.

Find out more about GEBCO, our history, work and products: [www.gebco.net](http://www.gebco.net)



Attendees at GEBCO's committee meetings hosted by the National Hydrographic Centre of the Royal Malaysian Navy, Kuala Lumpur, 2015