1983 - 2003
Into the Digital Age – the GEBCO Digital Atlas

1983　　* Digitisation of the GEBCO Fifth Edition　　- 1993

1993　　* Initialisation of the GEBCO Digital Atlas

1993　　* Updating the GEBCO Digital Atlas　　　　- 2003

　　　　　　Revised Bathymetry - contours
　　　　　　Creation of the GEBCO One Minute Grid

2003　　* Centenary Edition of the GEBCO Digital Atlas

1993-2003 Updating the GEBCO Digital Atlas

Bathymetry of over a third of the world's oceans has been updated since 1993

5.12 (revised): South Atlantic

G.01: Arctic Ocean

G.02: NE Atlantic off the British Isles

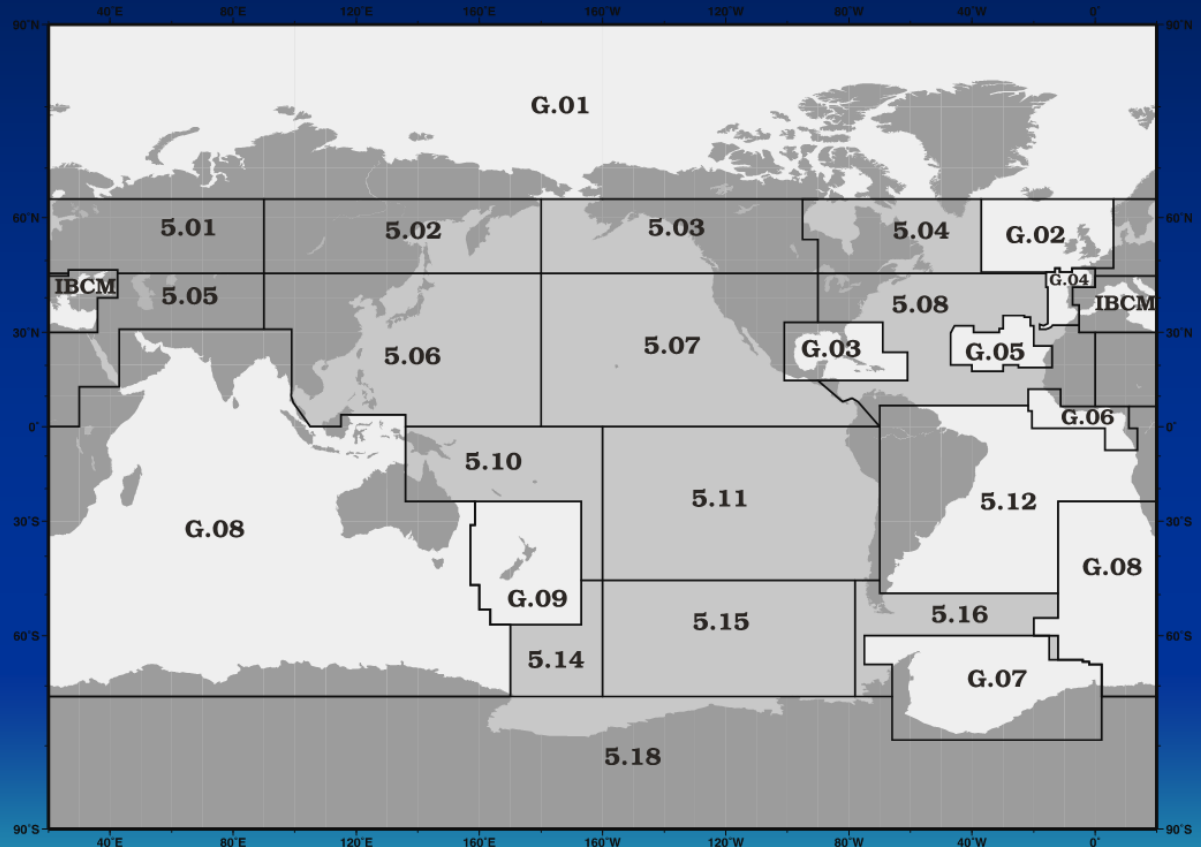G.03: Caribbean Sea & the Gulf of Mexico

G.04: Iberian Peninsula Region

G.05: MAR to NW Africa

G.06: Central Equatorial Atlantic

G.07: Weddell Sea

G.08: Greater Indian Ocean

G.09: New Zealand Region

1993-2003 Updating the GEBCO Digital Atlas

Creation of the GEBCO One Minute Grid

* More flexible format for
   computer applications
       e.g. visualisation
       & ocean modelling

* Based on GEBCO contours
   (and supplementary data)

* 1' latitude/longitude grid
       * better replicate contours
       * base for future updating

* Land from IGBP GLOBE

* Created by a small group of
   GEBCO experts and completed
   in February 2003
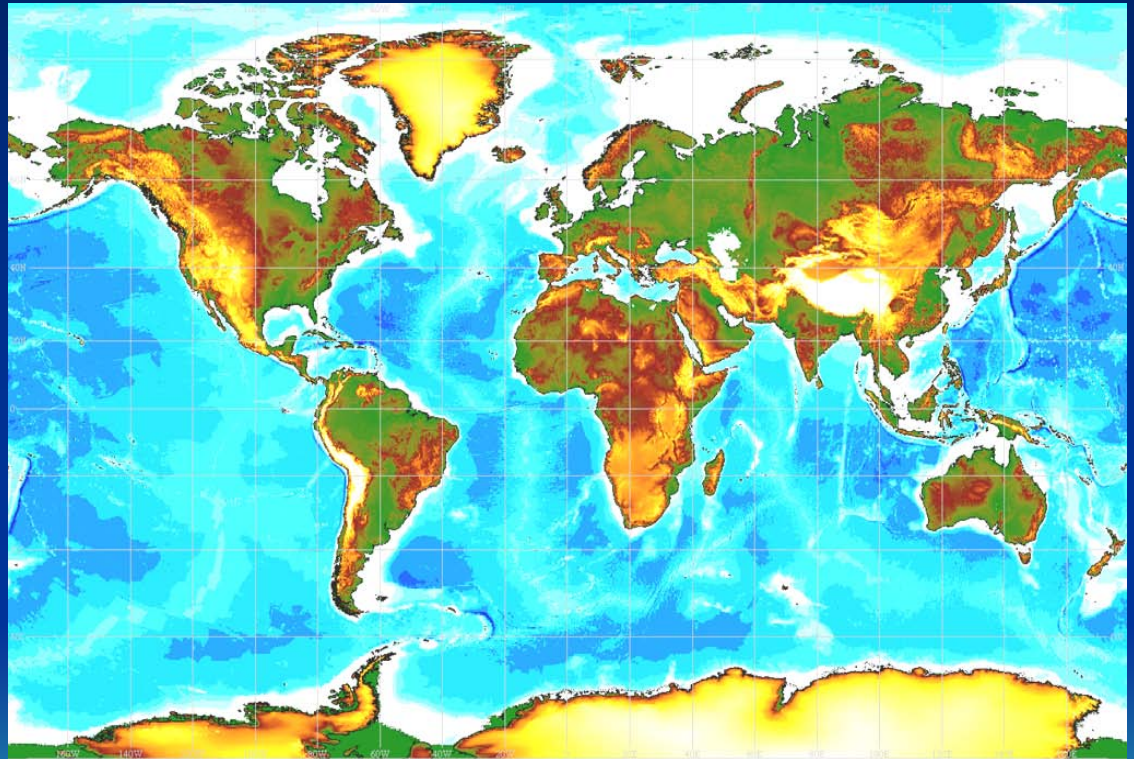
Centenary Edition of the GEBCO Digital Atlas
(released 14 April 2003)

Published as a pair of CD-ROMs

* Full set of GEBCO contours (updated) and trackline control information

* GEBCO One Minute Grid

* Set of digital global coastlines

* IHO/IOC Gazetteer of Undersea Feature Names

* Trackline inventory of data at the IHO Data Centre for Digital Bathymetry

* Complete documentation on data sets

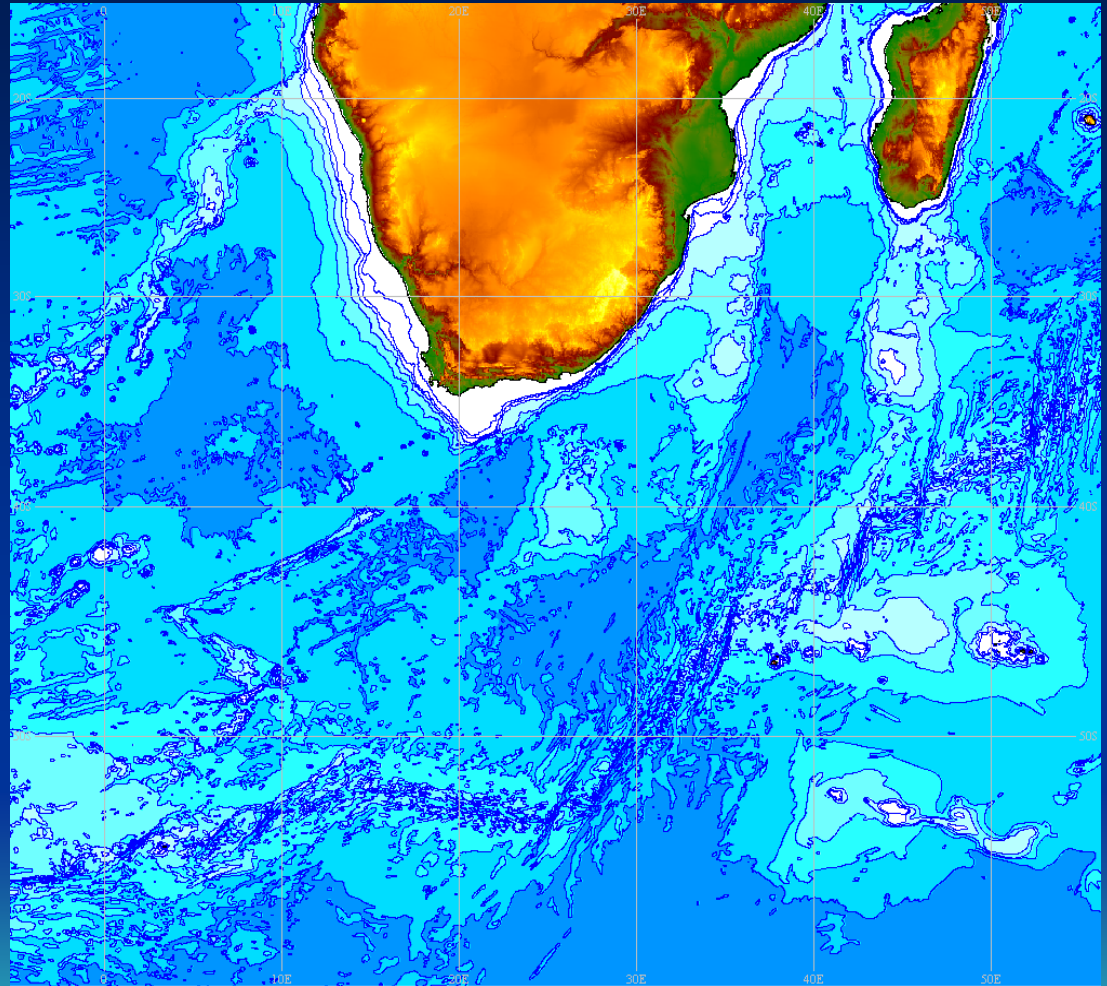* PC based *Windows* Software Interface to select, view and export data
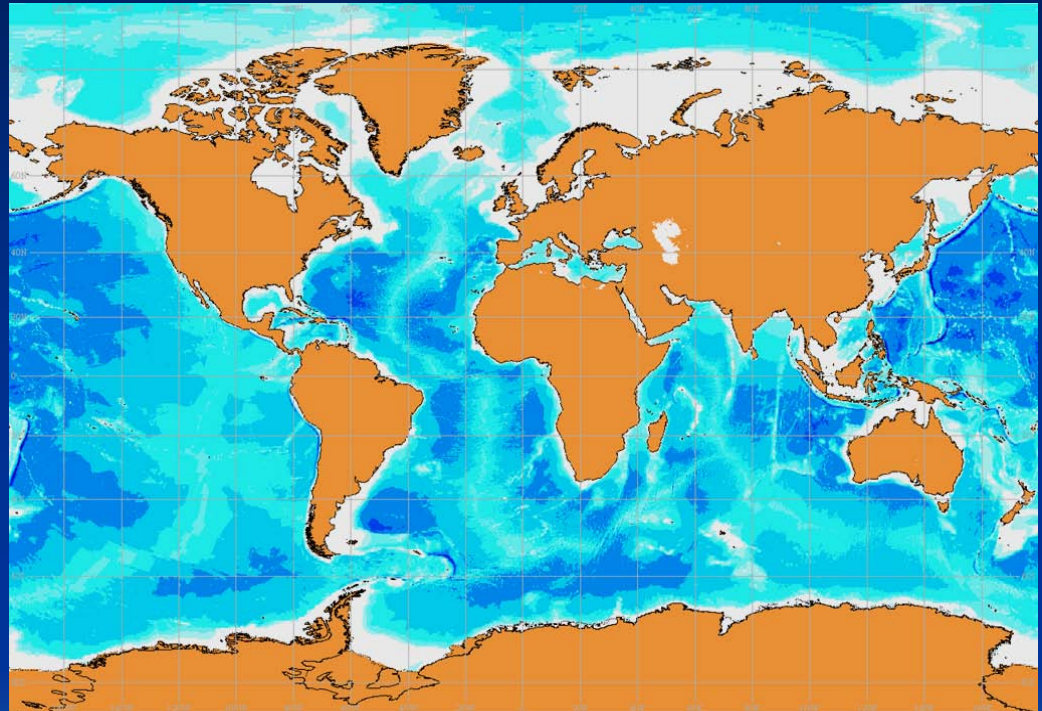
GDA Centenary Edition: GDA Software Interface

User-Selectable Area of Interest by:

Geographic Coordinates
Zoom Box
Chart Area/No

THEN

**DISPLAY DATA
and/or
EXPORT DATA**

GDA Centenary Edition: GDA Software Interface
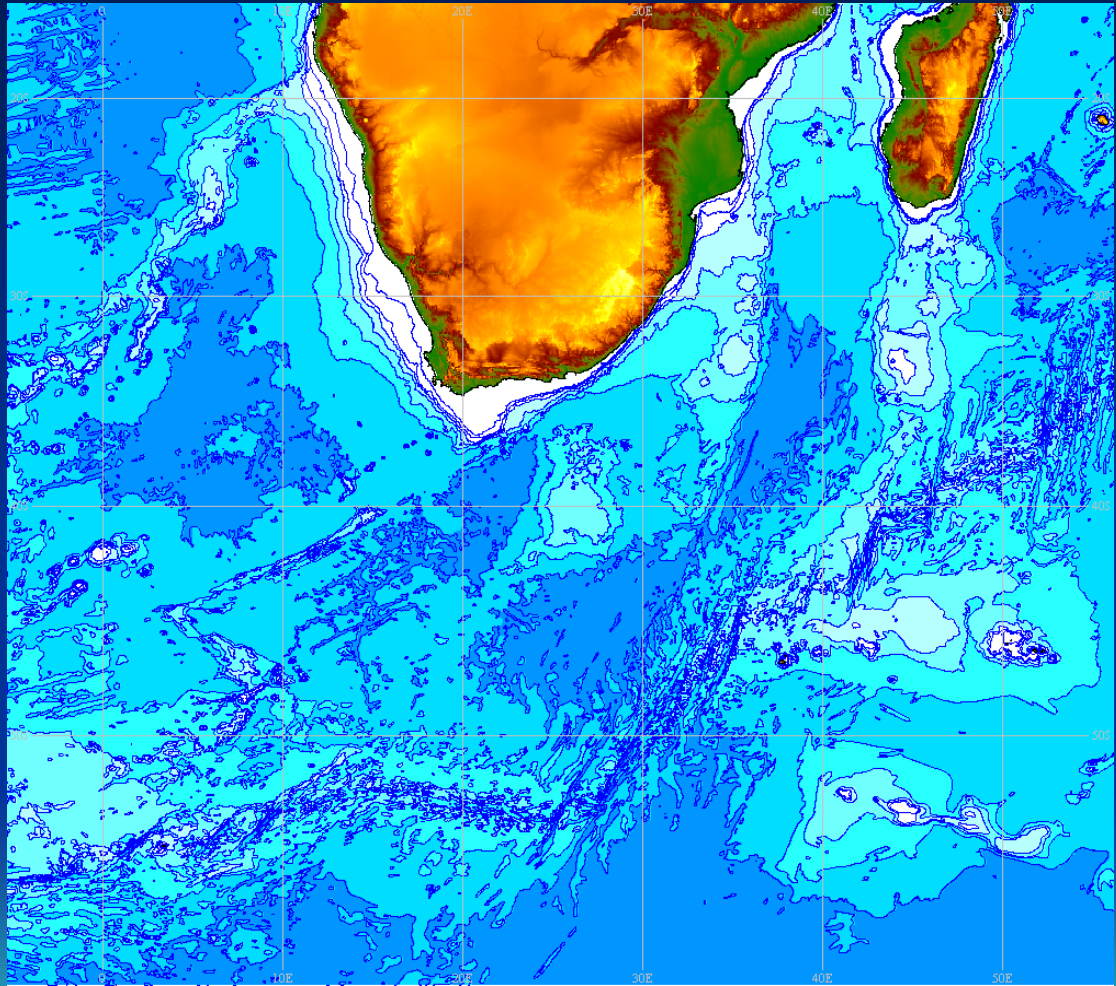
Export Data from User-Selected Area

<u>Vectors</u>: Contours, Coastlines and/or Tracklines as selected

<u>Vector Formats</u>
* flat ASCII (GMT compatible)
* DXF for *AUTOCAD*
* Shapefile for *ARCINFO*

<u>One Minute Grid Formats</u>
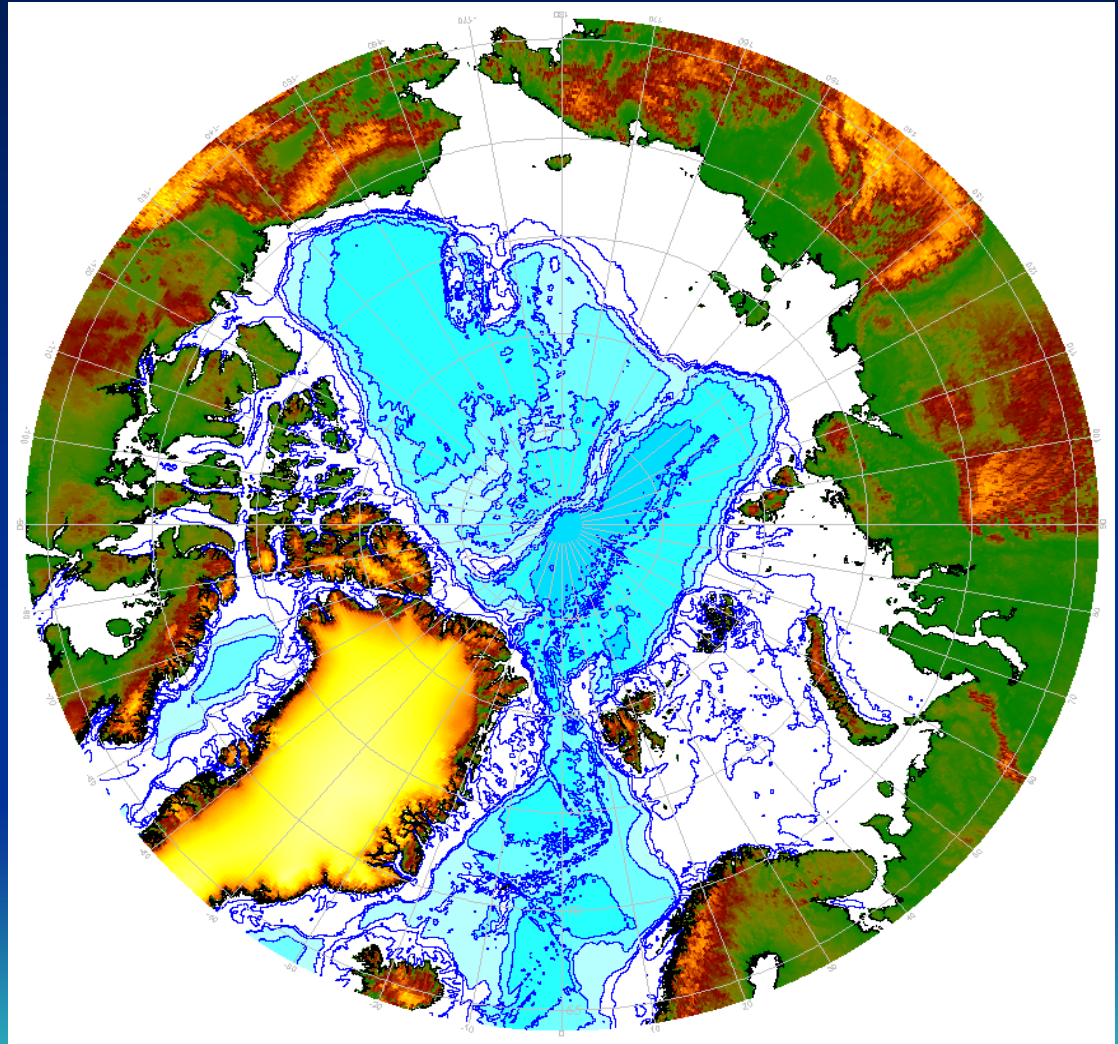* flat ASCII (with options)
* netCDF (GMT compatible)

GDA Centenary Edition: GDA Software Interface

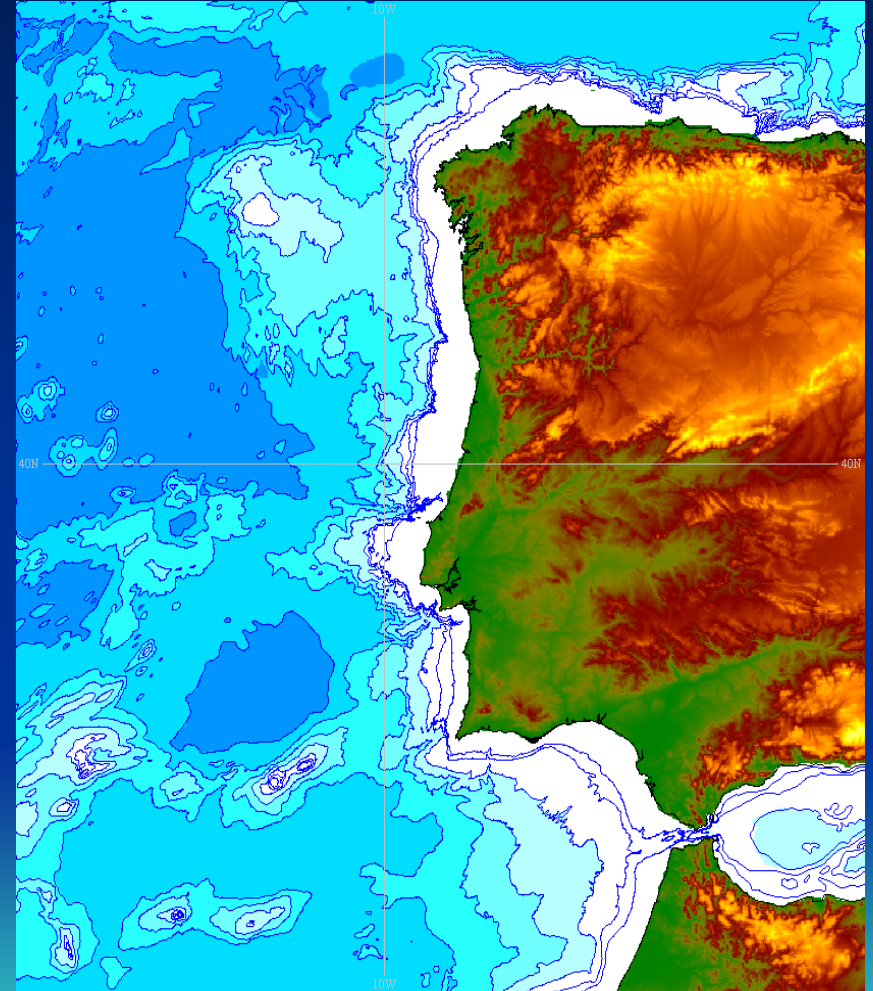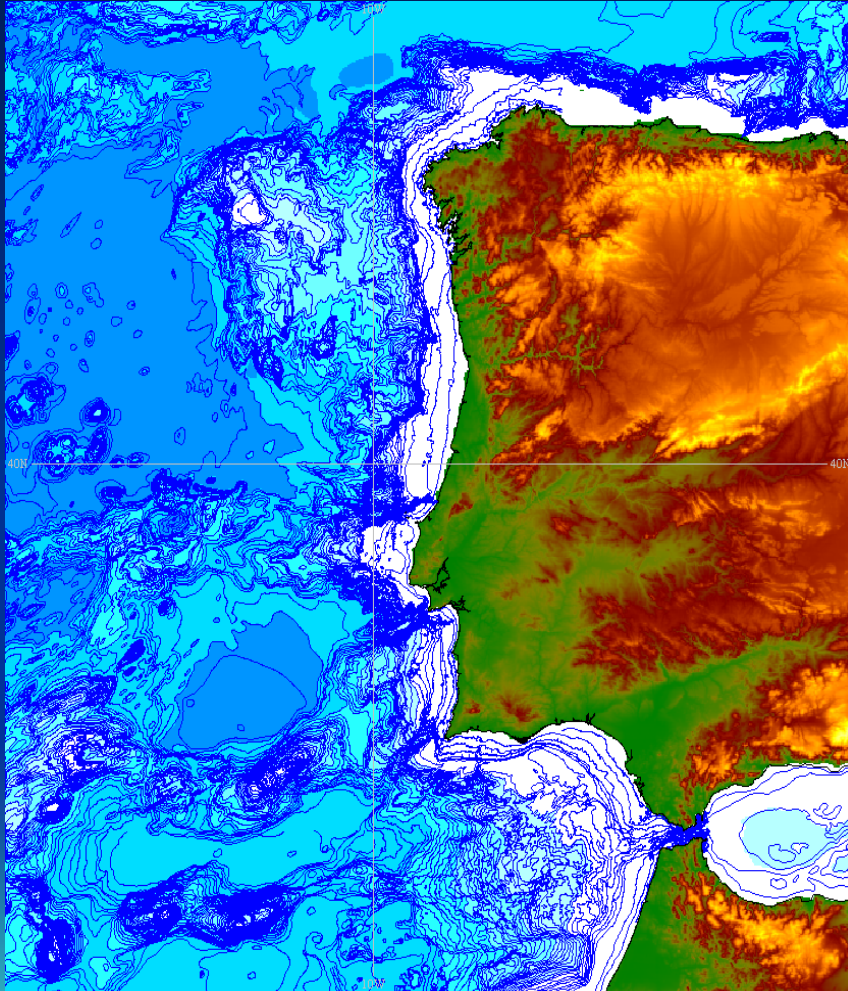**Choice of Projections**

*Mercator

*Miller Cylindrical

*Lambert Equal Area

*Equidistant Cylindrical

*Polar Stereographic

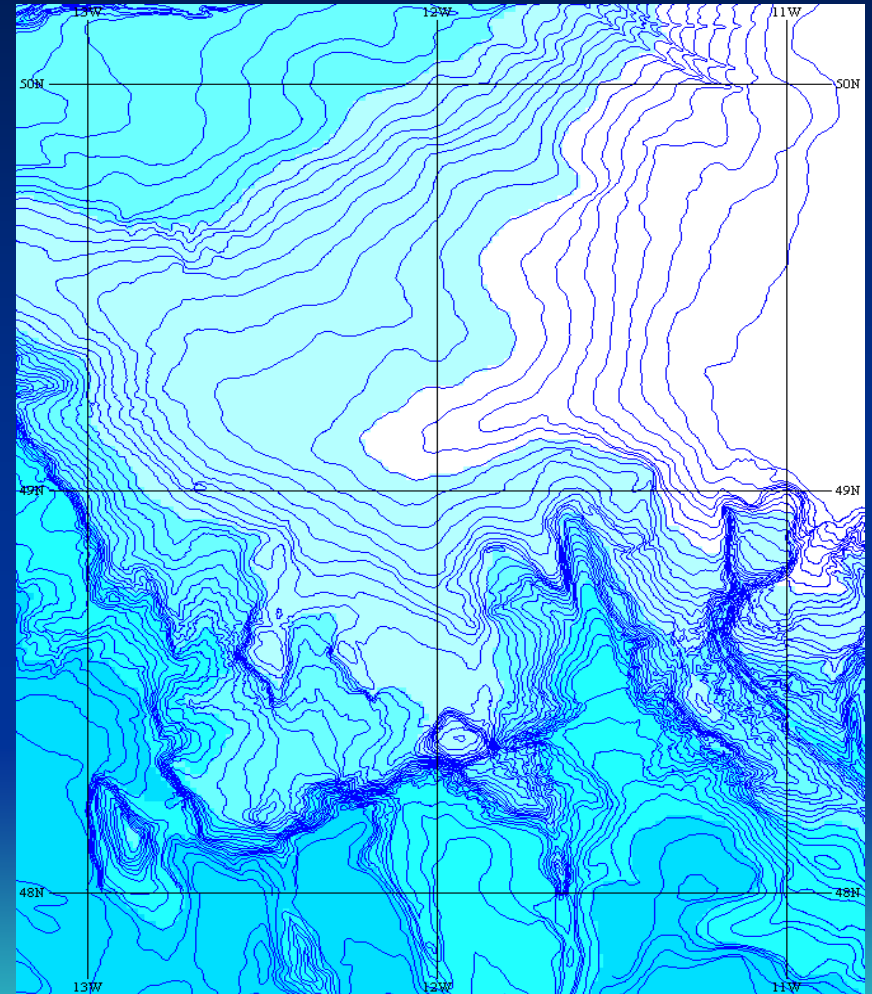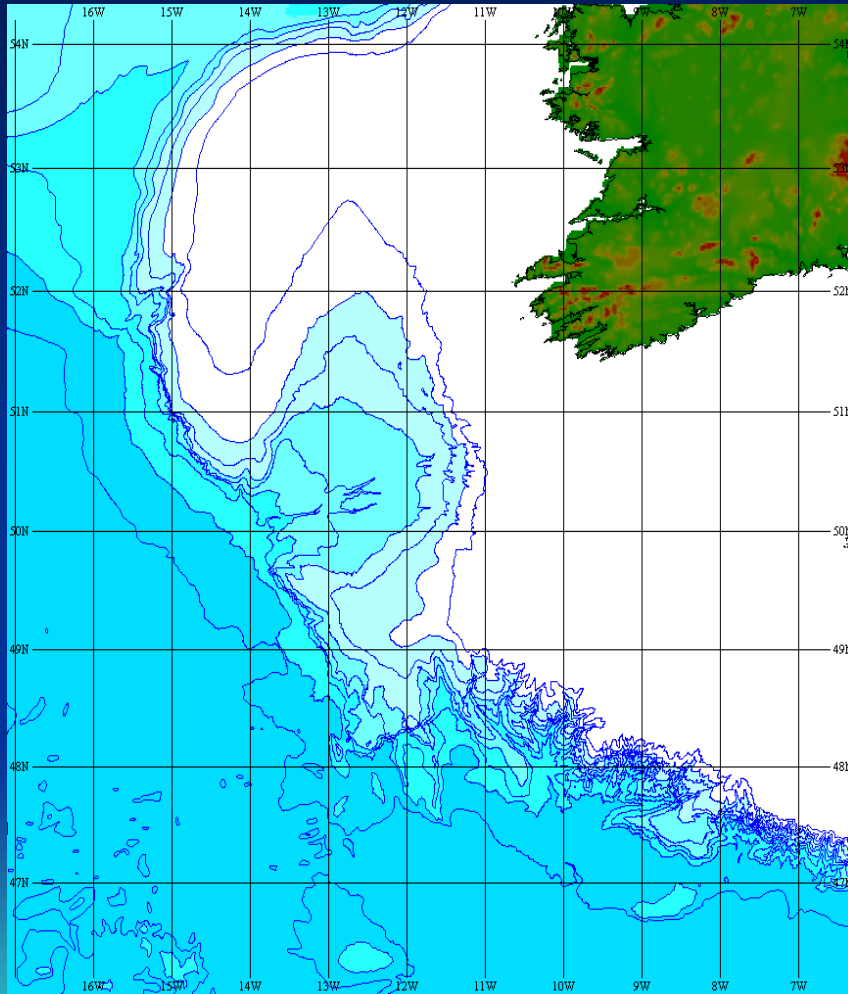# GDA Centenary Edition: GDA Software Interface

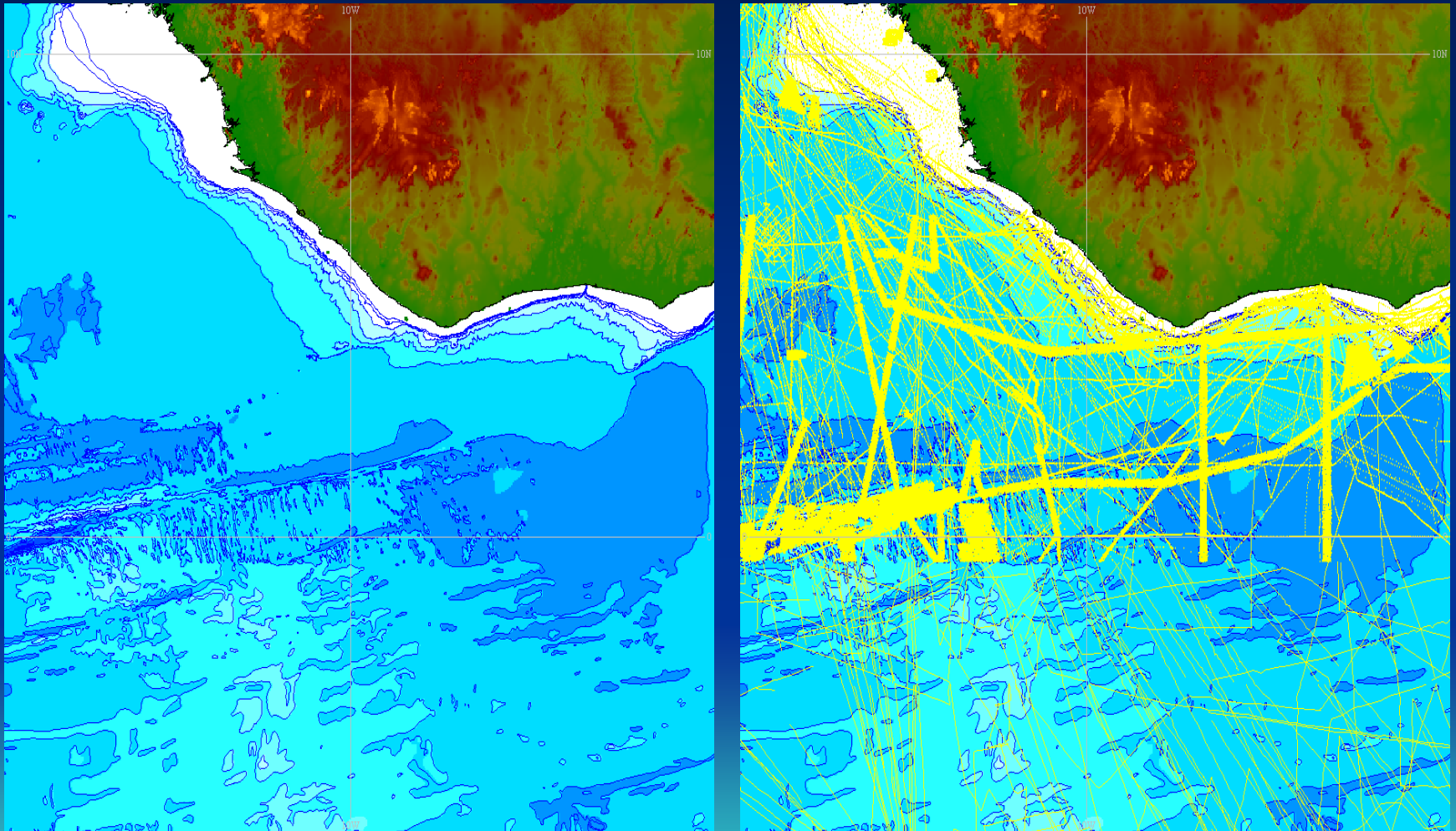## Bathymetric contours can be selected or de-selected by the user

GDA Centenary Edition: GDA Software Interface

The user can zoom in to view finer detail

GDA Centenary Edition: GDA Software Interface

Trackline control data can be overlain on the Bathymetry

GDA Centenary Edition: GDA Software Interface

Cursor Controlled Query facilities for:

a) survey boxes -> details about the survey (who, what, when etc)

b) undersea features -> name and IHO/IOC Gazetteer information about the feature

c) islands -> name of island

d) contour -> depth value

e) cursor position and echo-sounding correction (Carter's Tables)

f) way points and distances
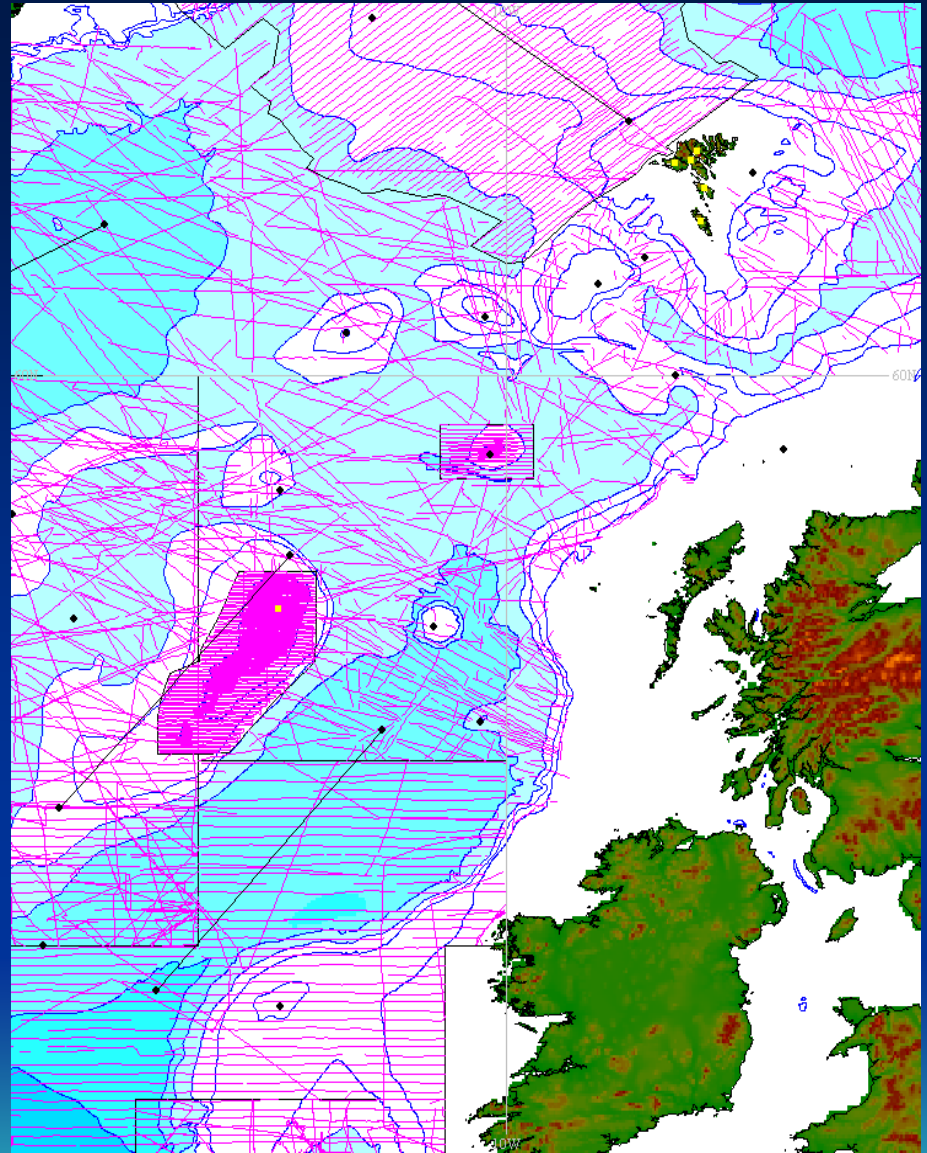
GDA Centenary Edition: GDA Software Interface

Sample Profile plot over Reykjanes Ridge and Rockall Plateau

Into the Digital Age – the GEBCO Digital Atlas
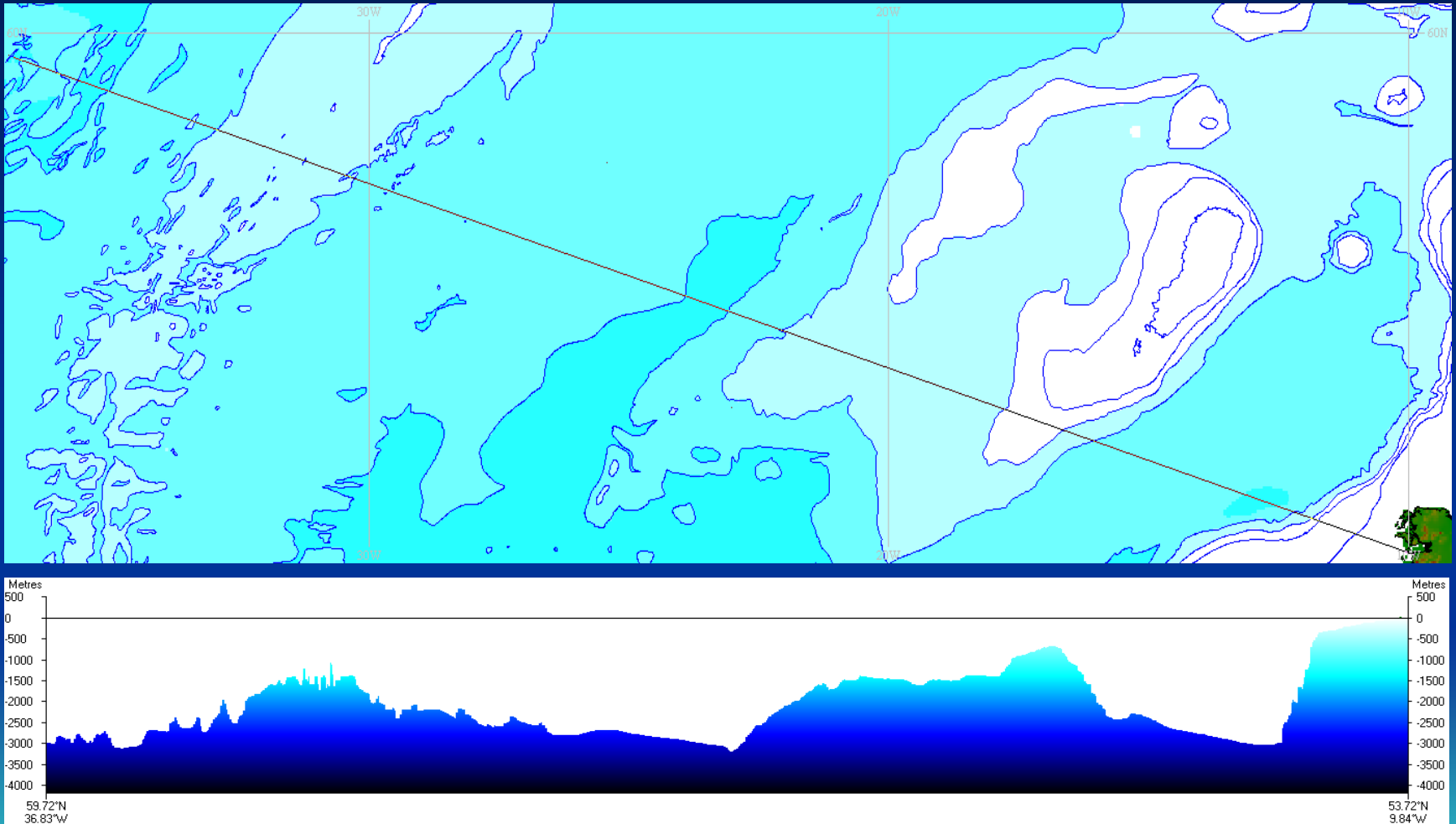
GDA Centenary Edition

- That was just a quick tour of the main facilities available to the user

- The full utility will only become apparent when you actually use it

- It is intuitive to use and has a low learning overhead
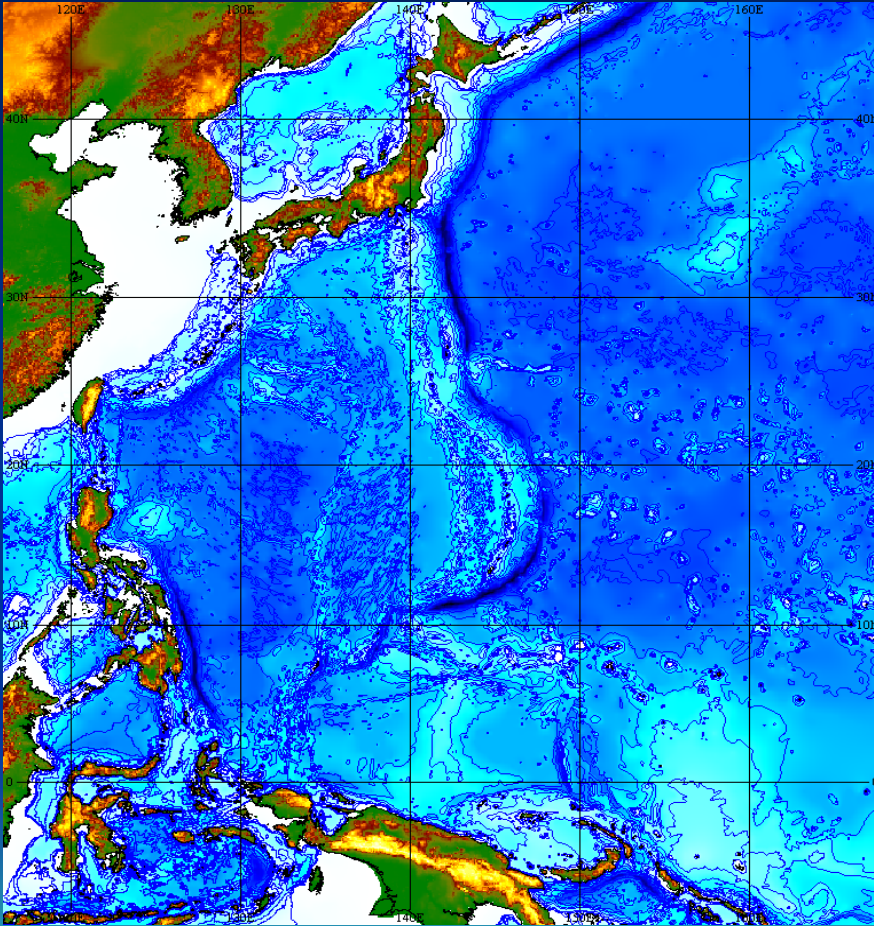
In presenting the 1ˢᵗ Edition of GEBCO to the Paris Academy of Sciences in January 1904, Professor Julian Thoulet remarked:

"….Here then is everything that is known today about the relief of the ocean floor. For many years to come, mariners, telegraphists, engineers, oceanographers, and scientists will continue their soundings, for now we must proceed to fill in the details; no point of any sea on the globe will escape our investigations…"

Nearly one hundred years on, Professor Thoulet's remarks appear equally applicable on the release of the Centenary Edition of the GEBCO Digital Atlas

1983-93   Digitising the GEBCO Fifth Edition

- in 1983 it was decided that, in future, GEBCO should be updated in digital form

    - user demand for a digital product
    - easier to update without the need to publish revised printed sheets
    - no longer constrained by the scale and projection of printed sheets

- a project was initiated to digitise the 18 sheets of the GEBCO Fifth Edition

    - major contributors: Bureau Gravimetrique International, Toulouse
                            British Oceanographic Data Centre, Bidston

    - all contours, coastlines, tracklines and survey boxes portrayed on the Fifth Edition sheets were digitised in vector form

    - produced a file of 100,000 contour segments – manual labelling and gap filling

    - seamless data set for standard GEBCO contours (500m intervals plus the 200m contour)

    - took 10 years to complete (15 person years of effort)

1993   Initialising the GEBCO Digital Atlas

- The digitised contours, coastlines and trackline control of the Fifth Edition were used to initialise the GEBCO Digital Atlas

- Updating by 'stitching in' improved bathymetry so as to maintain the seamless nature of the data set for the standard GEBCO contours

- Improved bathymetry included at scales better than 1:10 million

- New 1:1 million scale digital coastlines for updated bathymetry:
     NIMA World Vector Shoreline and the SCAR coastline of Antarctica

- Enables GEBCO to incorporate the best available bathymetry

- Digital product in its own right

- GEBCO Digital Atlas first published by BODC on CD-ROM in 1994

- Second Edition published in 1997

- Currently in use by over 1000 institutions worldwide in 87 countries

Images from the GEBCO Digital Atlas