



# **Briefing on the work of GEBCO (GENERAL BATHYMETRIC CHART OF THE OCEANS)**

On behalf of GEBCO: Pauline Weatherall, British Oceanographic Data Centre (BODC), National Oceanography Centre (NOC), Liverpool, UK

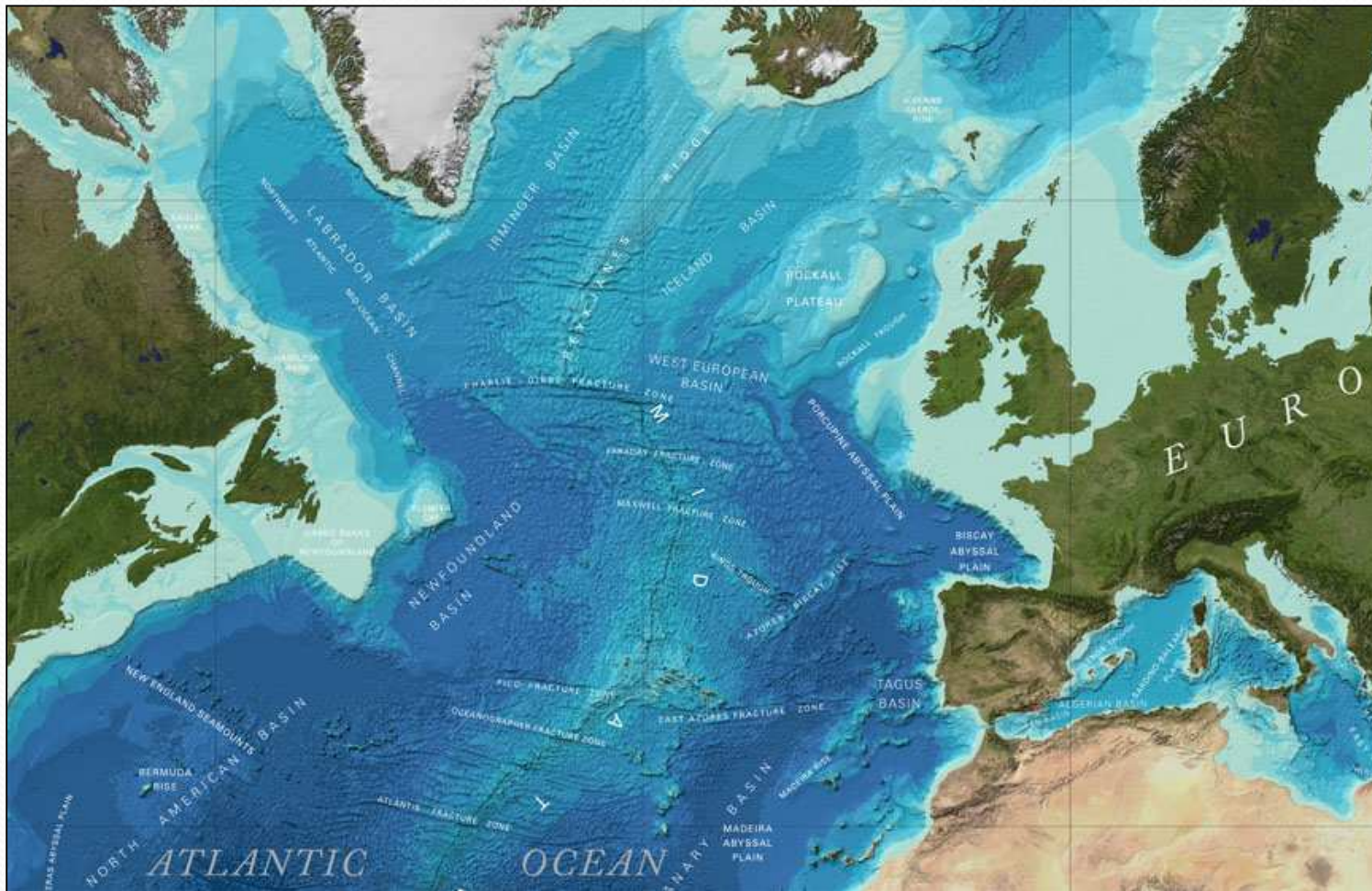
32<sup>nd</sup> North Sea Hydrographic Commission Meeting, Dublin, Ireland, 21 -23 June 2016

# What is GEBCO?

The General Bathymetric Chart of the Oceans (GEBCO),  
[www.gebco.net](http://www.gebco.net):

- Aims to provide the most authoritative, publicly-available bathymetric data sets for the world's oceans
- Operates under the joint auspices of the International Hydrographic Organization (IHO) and Intergovernmental Oceanographic Commission (IOC) of UNESCO
- First GEBCO paper chart series initiated in 1903
- Forum for Future Ocean Floor Mapping (June 2016):  
[www.iho.int/mtg\\_docs/com\\_wg/GEBCO/FOFF/index.html](http://www.iho.int/mtg_docs/com_wg/GEBCO/FOFF/index.html)

# What is GEBCO?



Imagery developed from the GEBCO global bathymetric grid (showing the shape of the sea floor in the North Atlantic Ocean) and gazetteer of undersea feature names

# GEBCO's organisational structure

- GEBCO is led by a Guiding Committee consisting of five IHO-appointed members; five IOC-appointed members; Sub-committee Chairs and the Director of the IHO-DCDB
- It has 3 sub-committees and a number of working groups:
  - Sub-Committee on Undersea Feature Names (SCUFN)
  - Technical Sub-Committee on Ocean Mapping (TSCOM)
  - Sub-Committee on Regional Undersea Mapping (SCRUM)
  - Working groups on Outreach and the IHO-IOC GEBCO Cook Book

[www.gebco.net/about\\_us/committees\\_and\\_groups/](http://www.gebco.net/about_us/committees_and_groups/)





## Regional mapping work

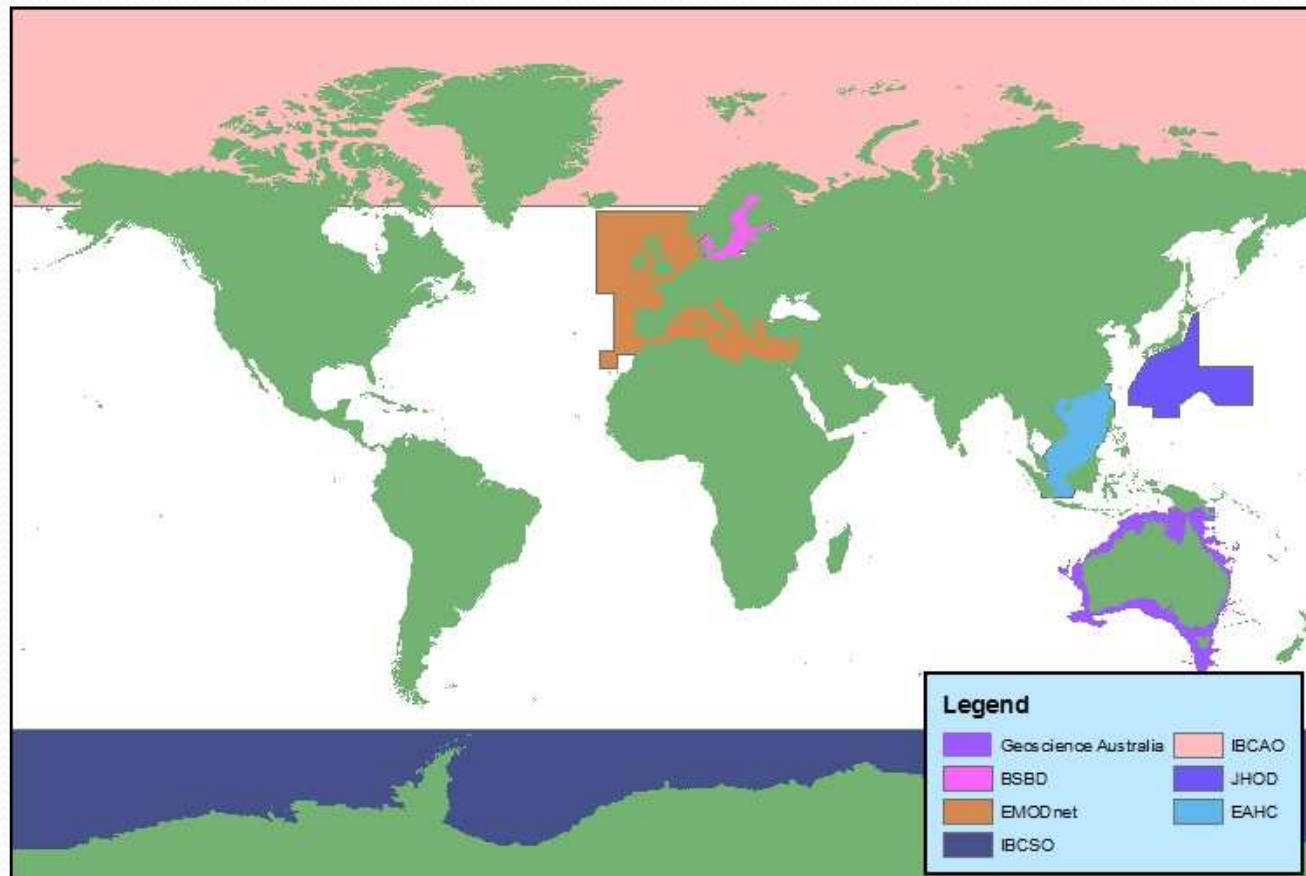
GEBCO has setup the Sub-Committee on Regional Undersea Mapping (SCRUM) to:

- Build a closer collaboration with regional mapping efforts and coordinate, as well as encourage, the incorporation of their compilations into GEBCO.
- The Global GEBCO grid is continuously updated in part from these regional grids, benefiting greatly from their local knowledge and expertise.

[www.gebco.net/regional\\_mapping/mapping\\_projects/](http://www.gebco.net/regional_mapping/mapping_projects/)

# Regional mapping work

Coverage of some of the regional compilations included in the current GEBCO Grid



# GEBCO's products

## **Our bathymetric data sets and products:**

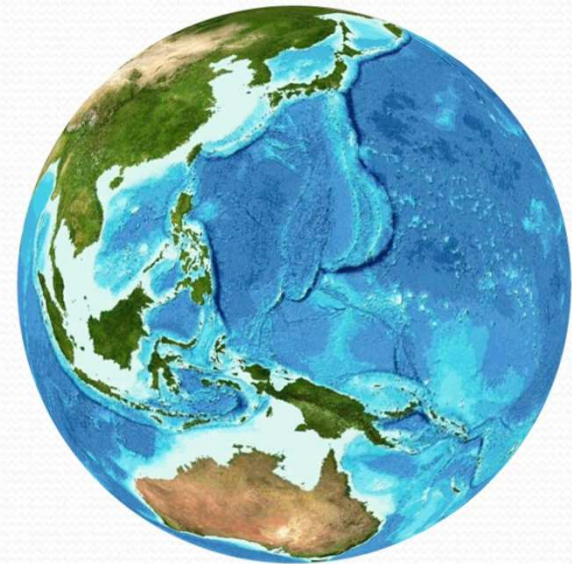
- Global gridded bathymetric data set (30 arc-second interval)
- GEBCO Gazetteer of Undersea Feature Names
- GEBCO Digital Atlas
- Grid viewing software
- Printable maps
- Web Map Service (WMS)
- IHO-IOC GEBCO Cook Book

[www.gebco.net/data\\_and\\_products/](http://www.gebco.net/data_and_products/)

# GEBCO's products: global bathymetric grid

The GEBCO Grid is a global terrain model at 30 arc-second intervals:

- Largely based on a database of ship-track soundings with interpolation between soundings guided by satellite-derived gravity data
- Includes regional grids which may be based on different interpolation models
- Accompanied by a Source Identifier Grid showing which cells are based on soundings or existing grids and which are interpolated

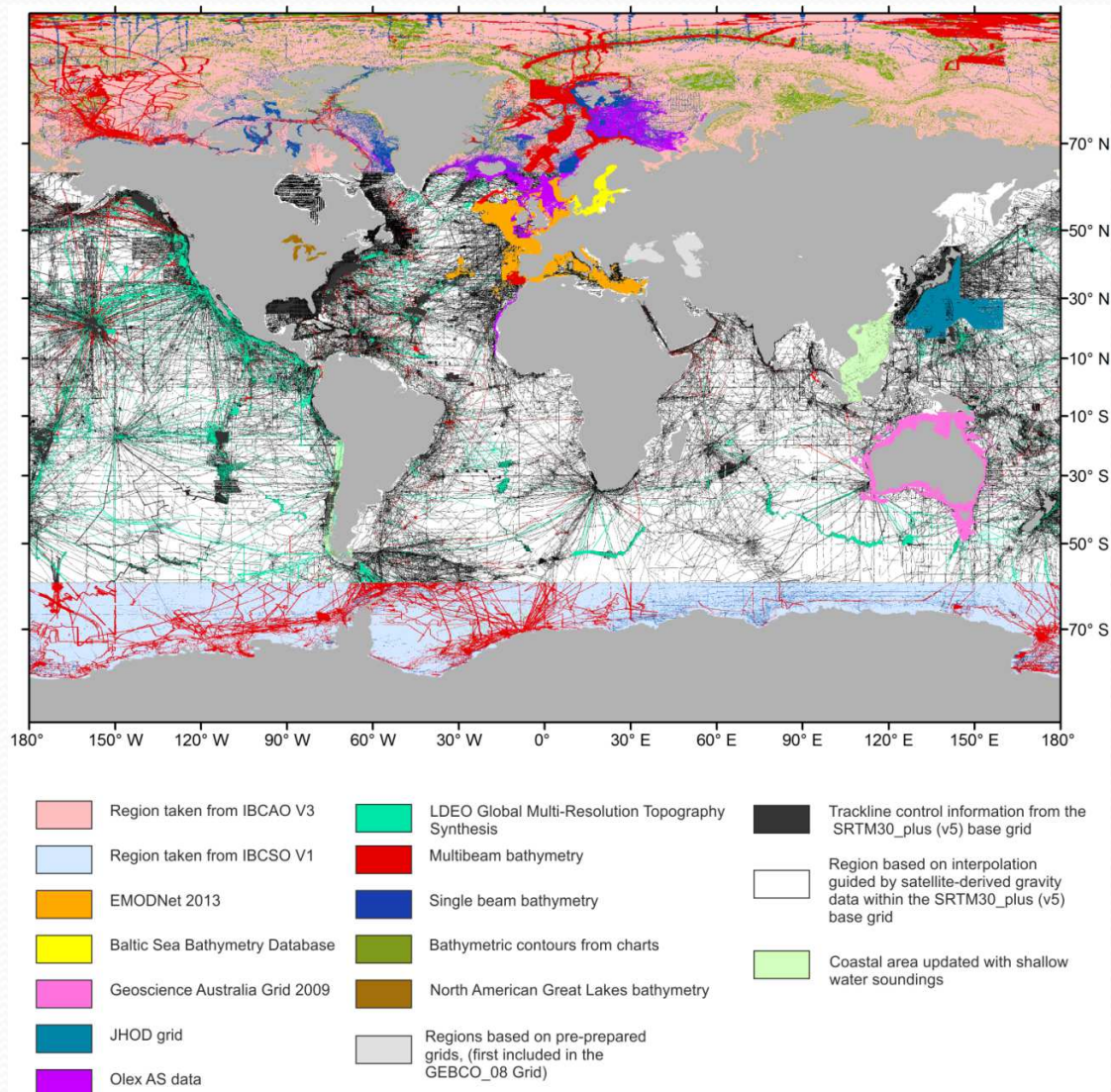


GEBCO's grids are made available for non-navigational purposes:

[www.gebco.net/data\\_and\\_products/gridded\\_bathymetry\\_data/](http://www.gebco.net/data_and_products/gridded_bathymetry_data/)



# GEBCO's products: Source Identifier Grid



Example of the GEBCO Source Identifier (SID) Grid showing the source of depth value in each grid cell, i.e. if it is based on trackline data; pre-existing grids or if it is based on interpolation



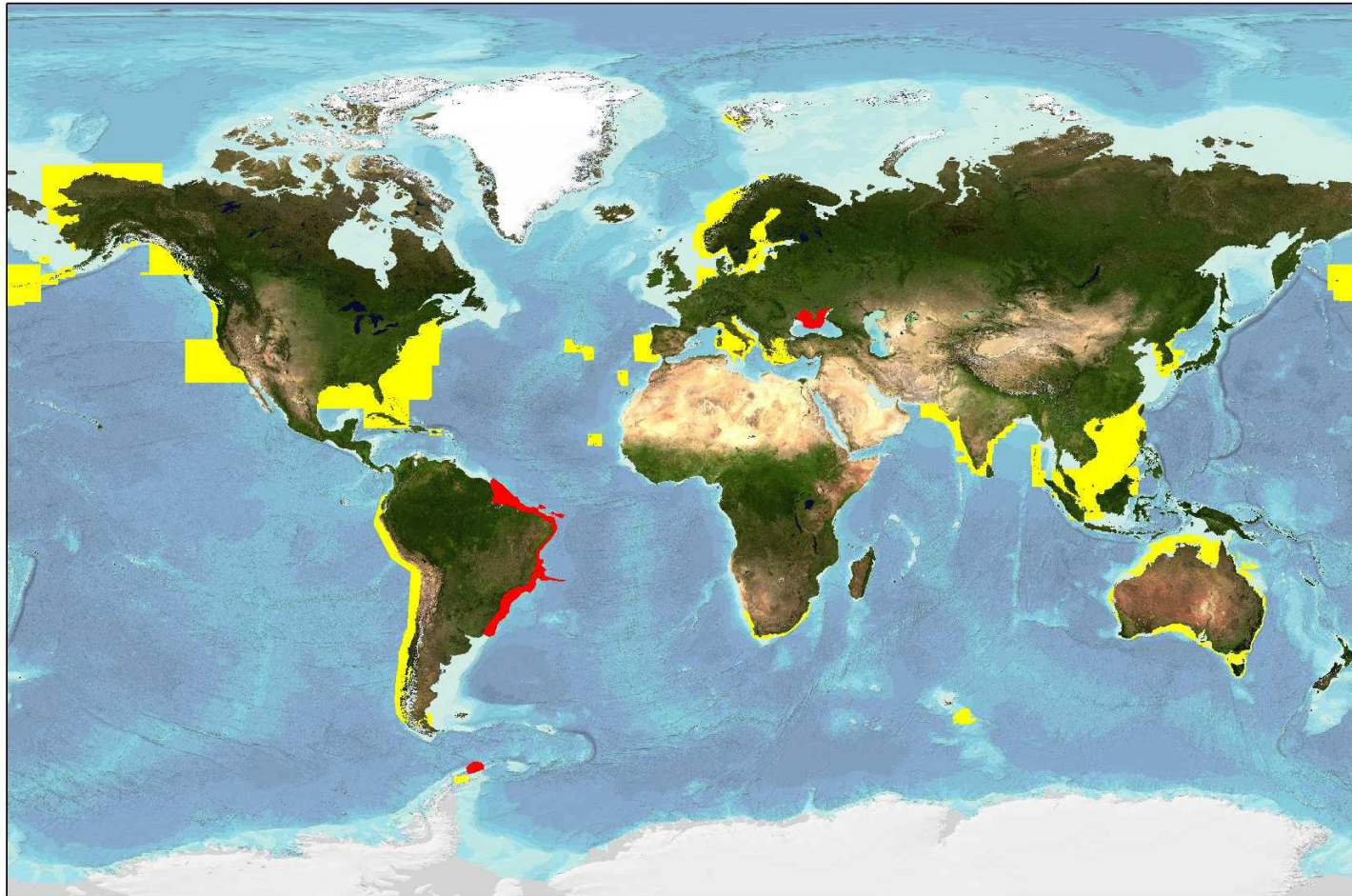
## Filling the data gaps

- Raising awareness of the ‘data gaps’ to encourage data collection in these regions
- Encouraging organizations to make their bathymetric data sets easily discoverable and accessible, either directly or by contributing data to international publically-available databases such as the IHO Data Center for Digital Bathymetry (IHO-DCDB)
- Crowd-sourced bathymetry (CSB) initiatives – such as the IHO CSB Working Group
- GEBCO initiative to request shallow water bathymetry data extracted from Electronic Navigation Charts from the Hydrographic community

## Shallow water bathymetry data

- To more accurately model the shape of the ocean floor in all areas and serve a wider user community, GEBCO is striving to improve its gridded bathymetric datasets in shallower waters
- In 2006 a request was made to IHO Member States to provide ENC data (usage bands 2 and 3) to GEBCO to help update its global model
- New request to IHO MS for ENC data sent out in March 2016 (circular letter 11/2016)

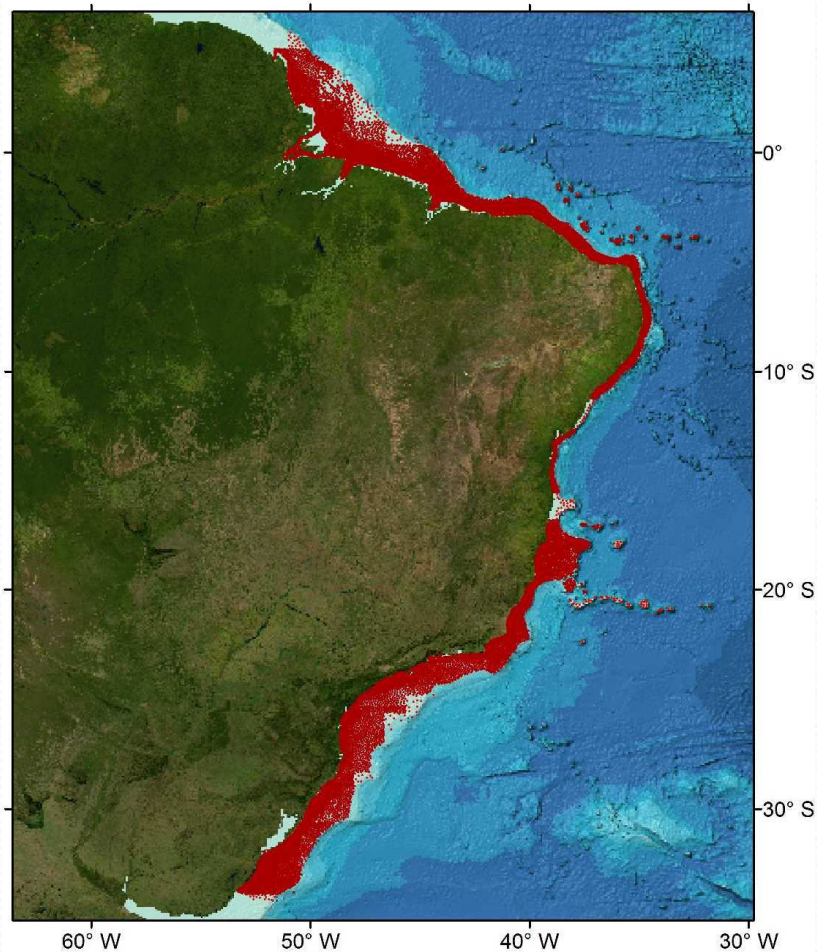
## Shallow water bathymetry – ENC data



ENC data coverage (usage bands 2 & 3) provided by IHO MS and organizations, to date, to GEBCO for grid updating work after calls in 2006 (yellow) and 2016 (red),

# Shallow water bathymetry – ENC data

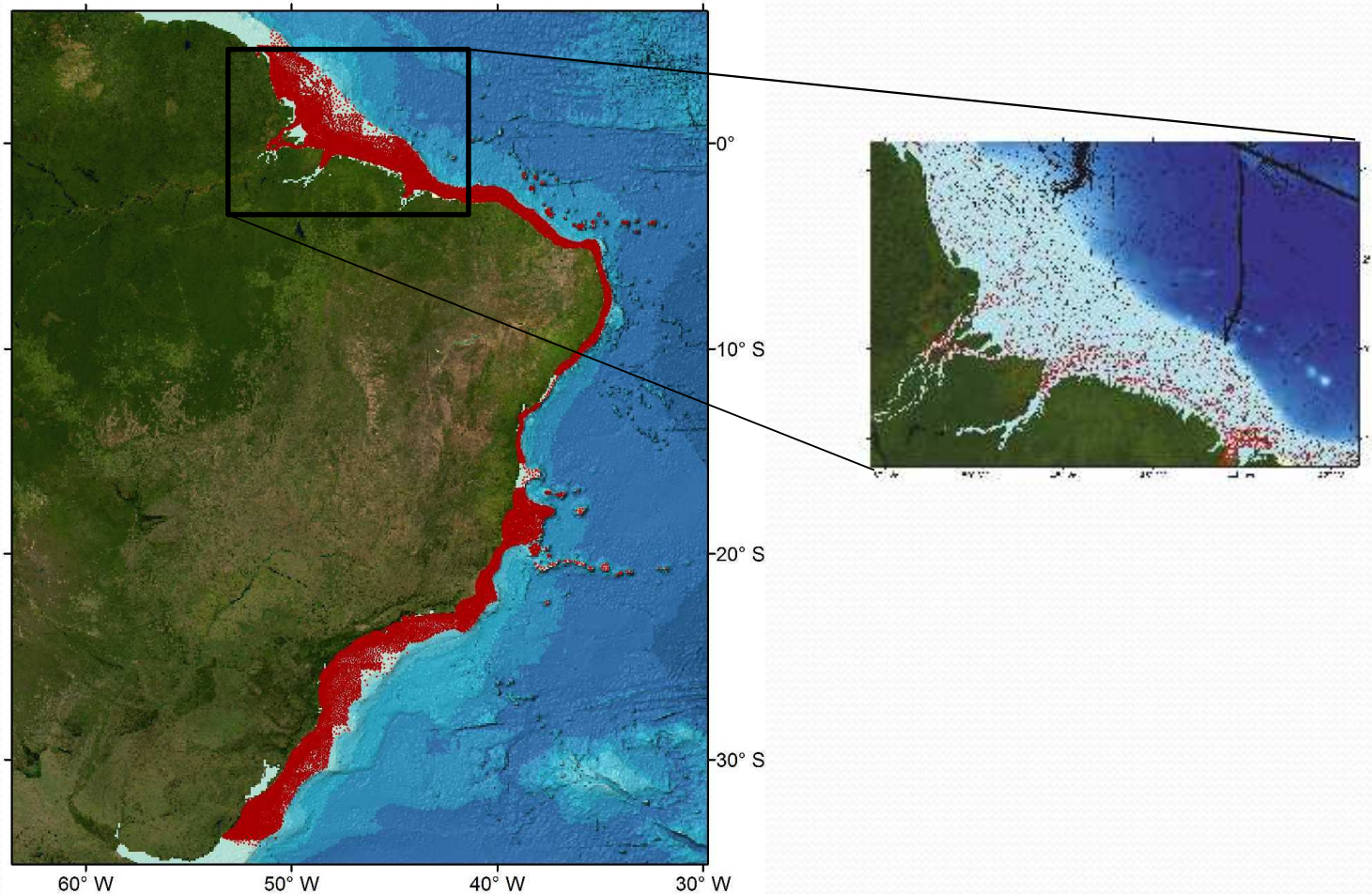
- Data for waters off Brazil



Soundings points extracted from ENCs recently supplied to GEBCO for the waters off Brazil

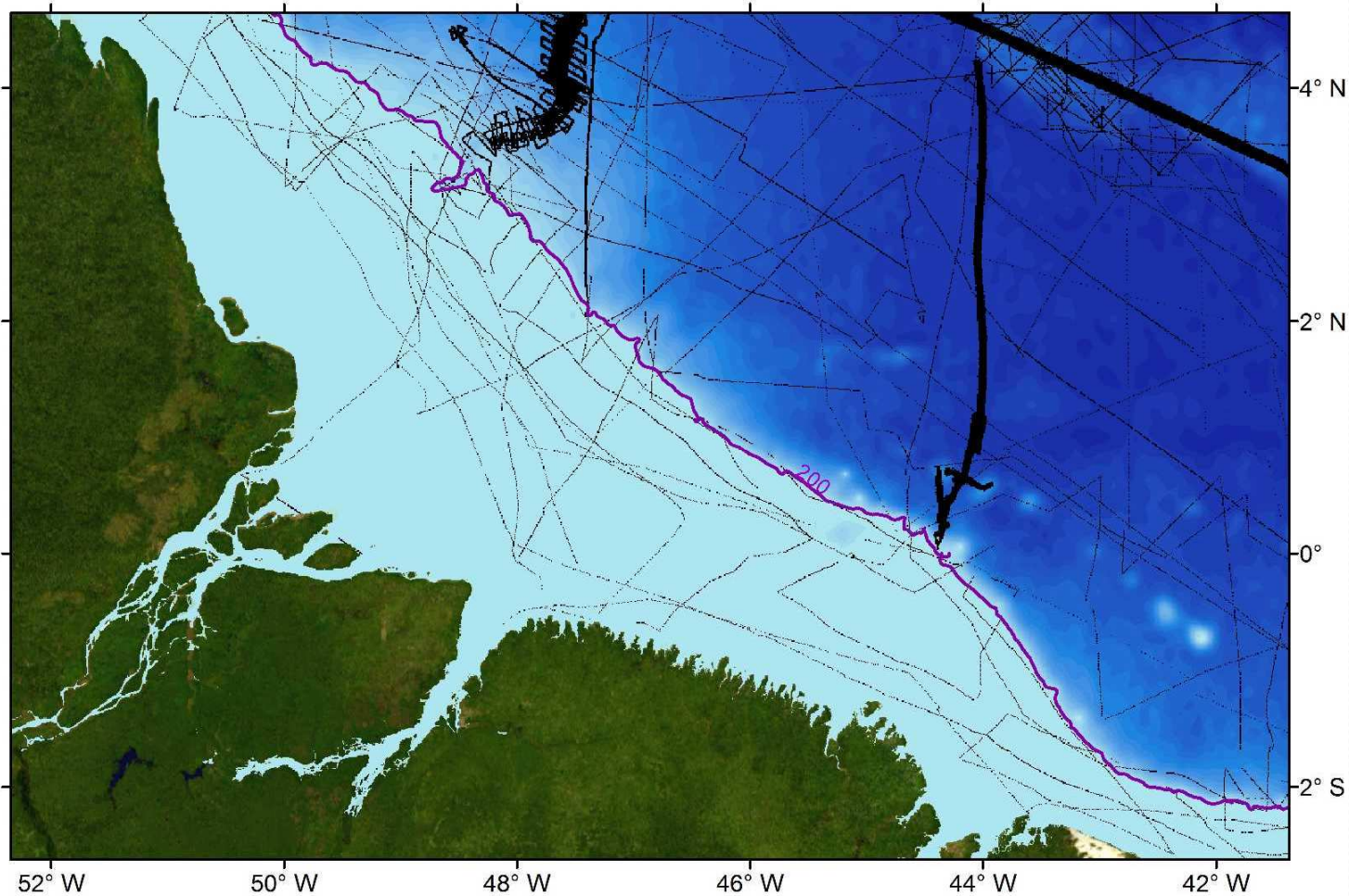
# Shallow water bathymetry – ENC data

- Data for waters off Brazil



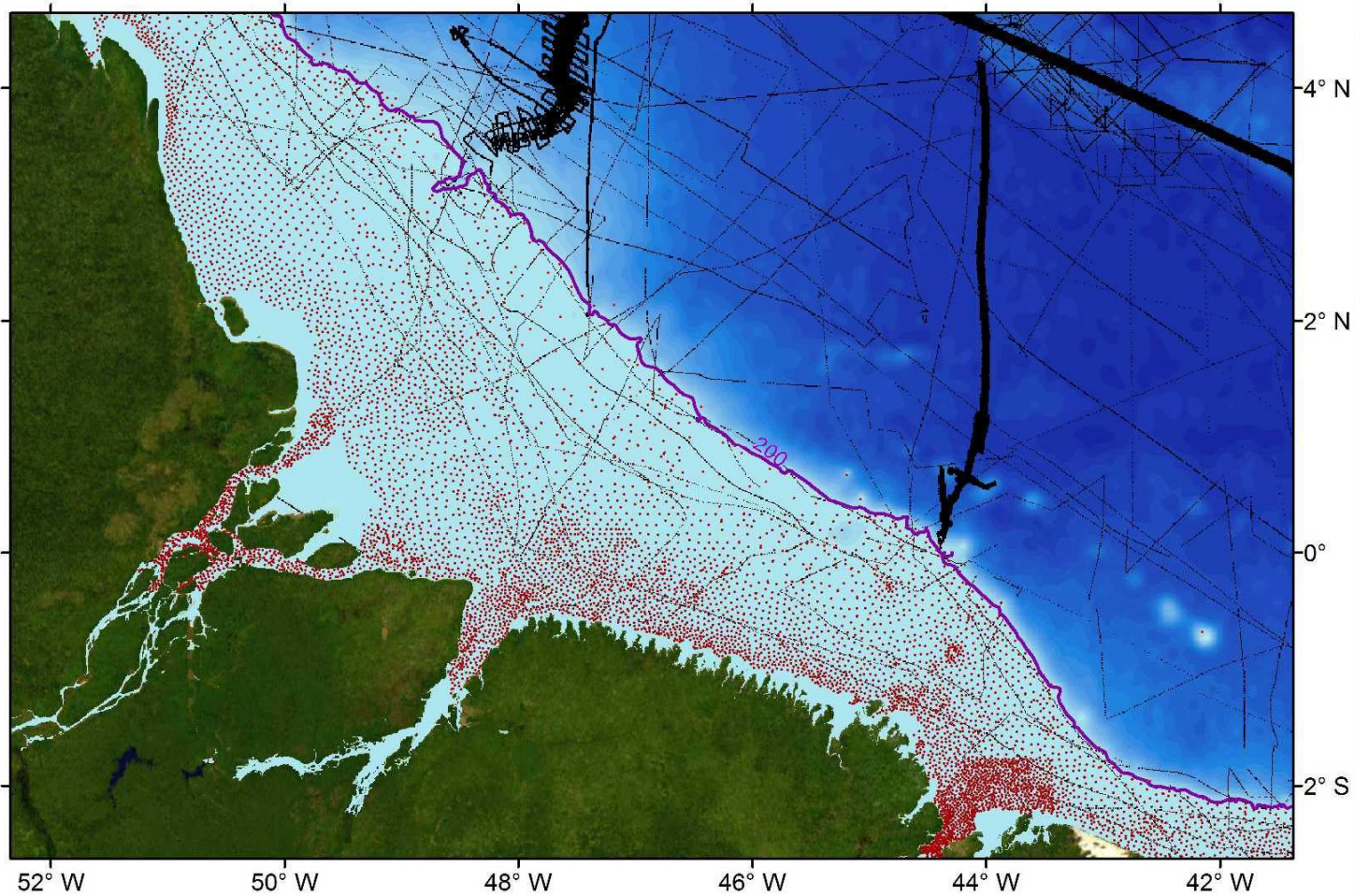
# Shallow water bathymetry data

- Current GEBCO trackline coverage (black lines)



# Shallow water bathymetry data

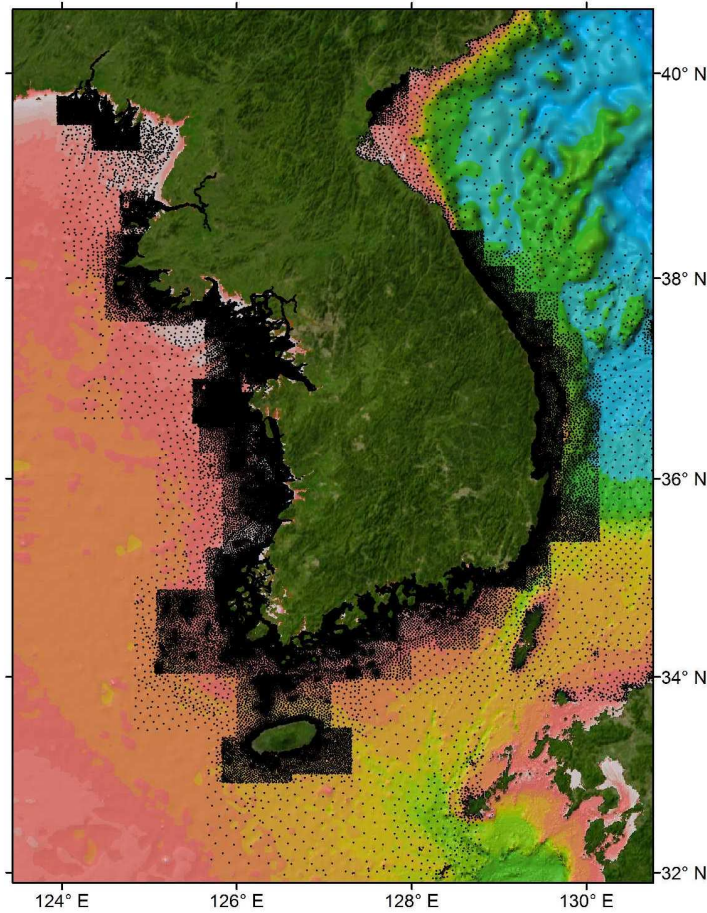
- GEBCO trackline coverage (black lines), plus ENC soundings (red)



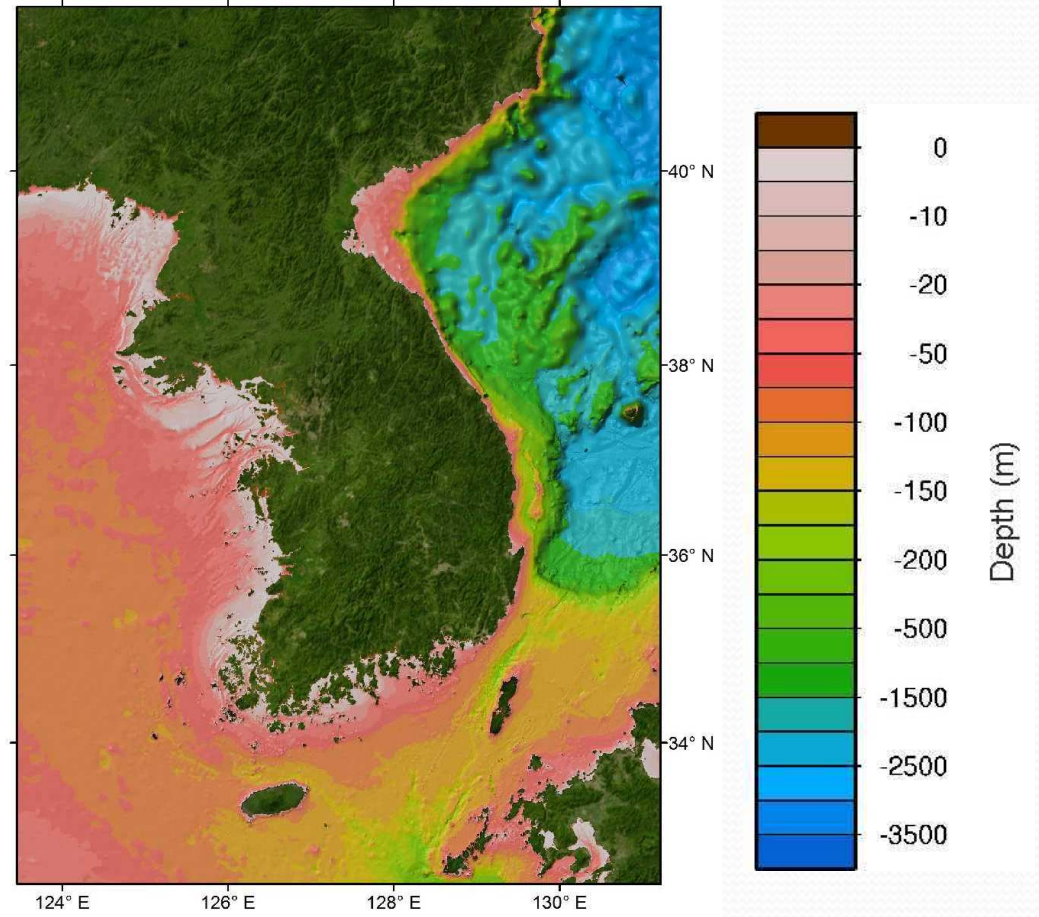


# Shallow water bathymetry data

- Region off the Korean Peninsula



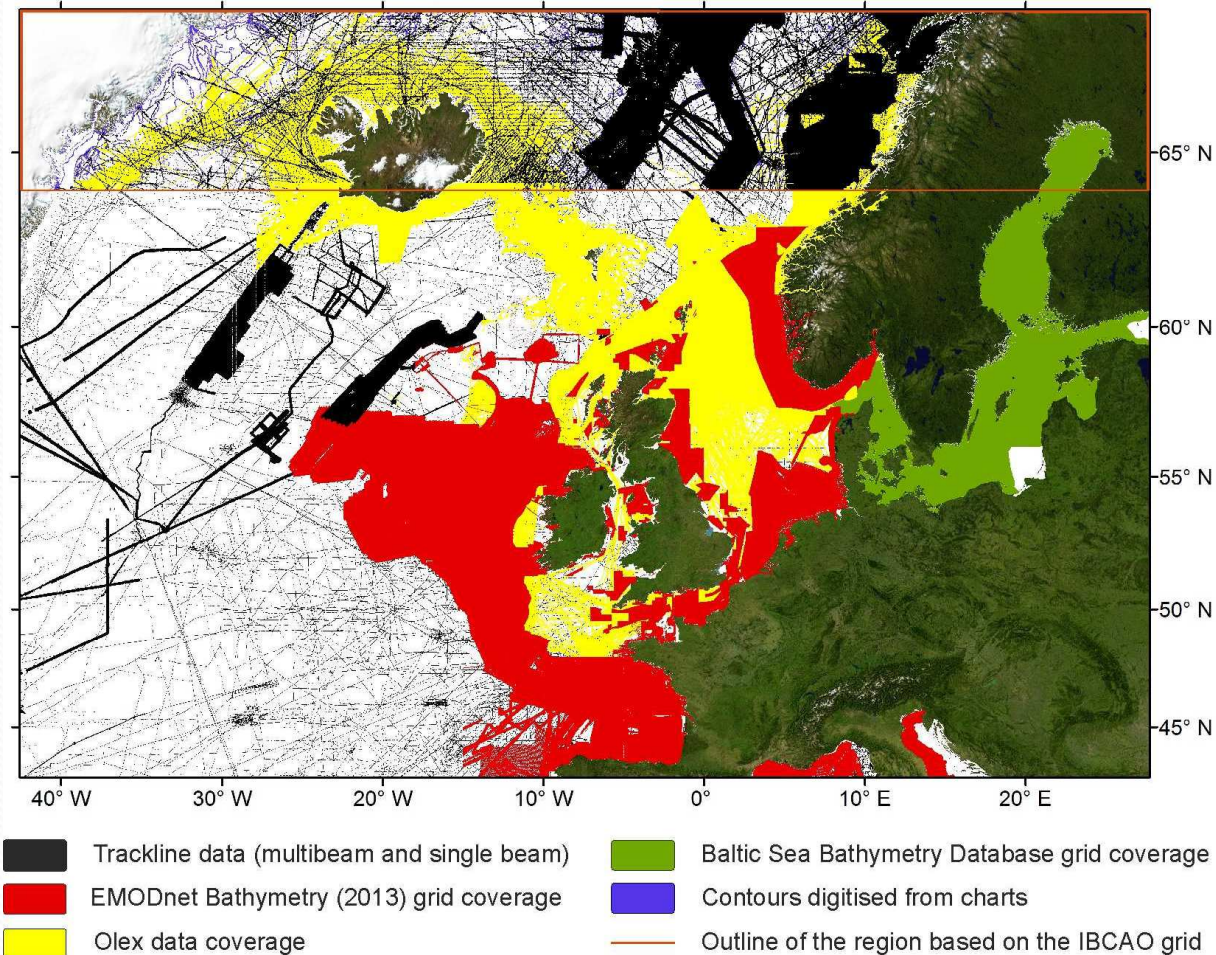
Coverage of ENC soundings supplied to GEBCO



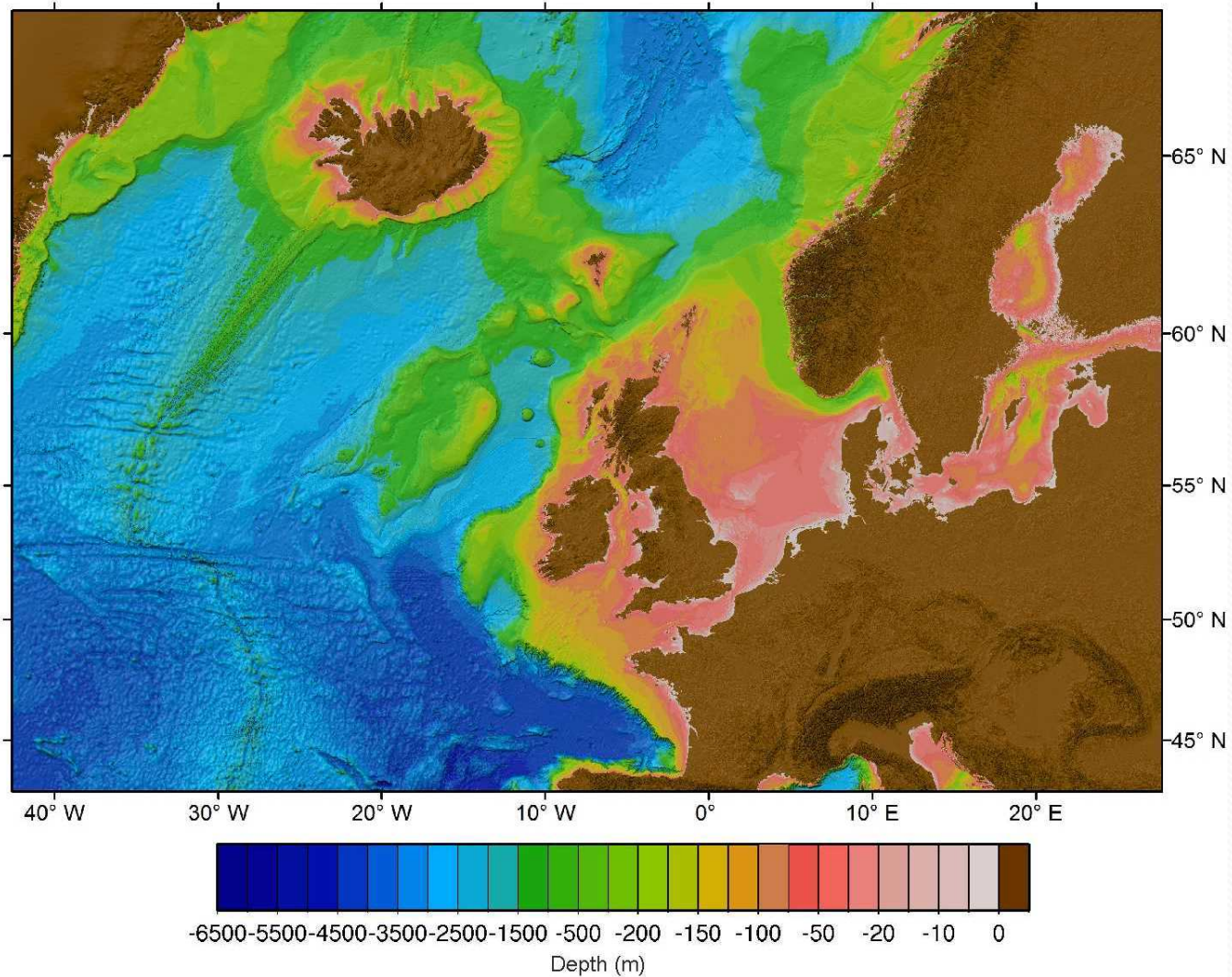
GEBCO\_2014 Grid

# GEBCO\_2014 Grid

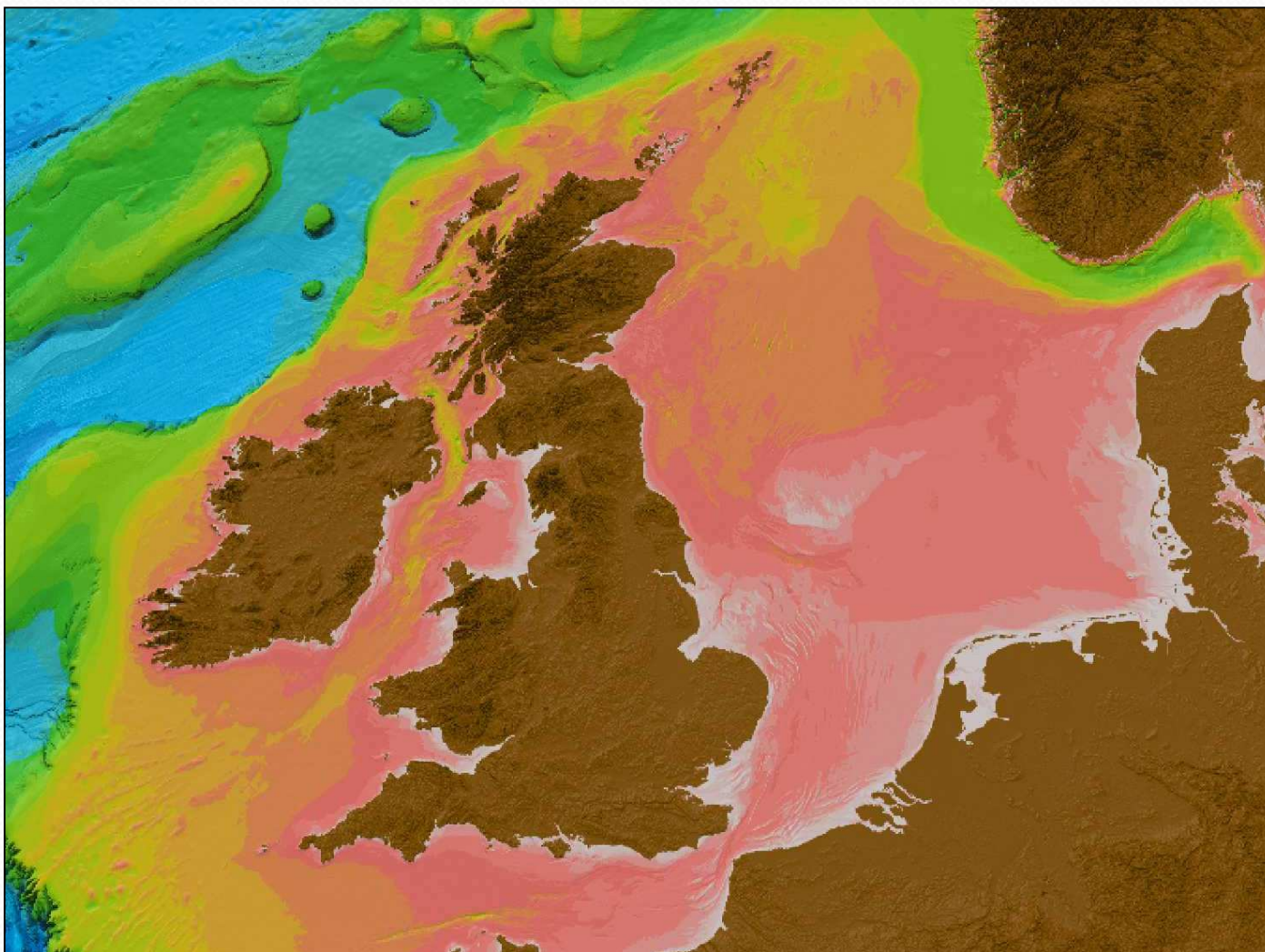
- GEBCO Source Identifier Grid in part of the NE Atlantic – showing the coverage of data sets contributing to the GEBCO\_2014 Grid



# GEBCO\_2014 Grid



# GEBCO\_2014 Grid





# Summary

GEBCO aims to:

- Continually update and improve its global bathymetric model and collaborate with regional mapping groups to help achieve this
- Encourage (where possible) the contribution of bathymetry data to publicly-available national or international databases

How to contribute data to help update GEBCO's global grid:  
[www.gebco.net/about\\_us/contributing\\_data/](http://www.gebco.net/about_us/contributing_data/)



**Thank you**

**Any questions?**