The IHO Data Centre for Digital Bathymetry

Overview & Update

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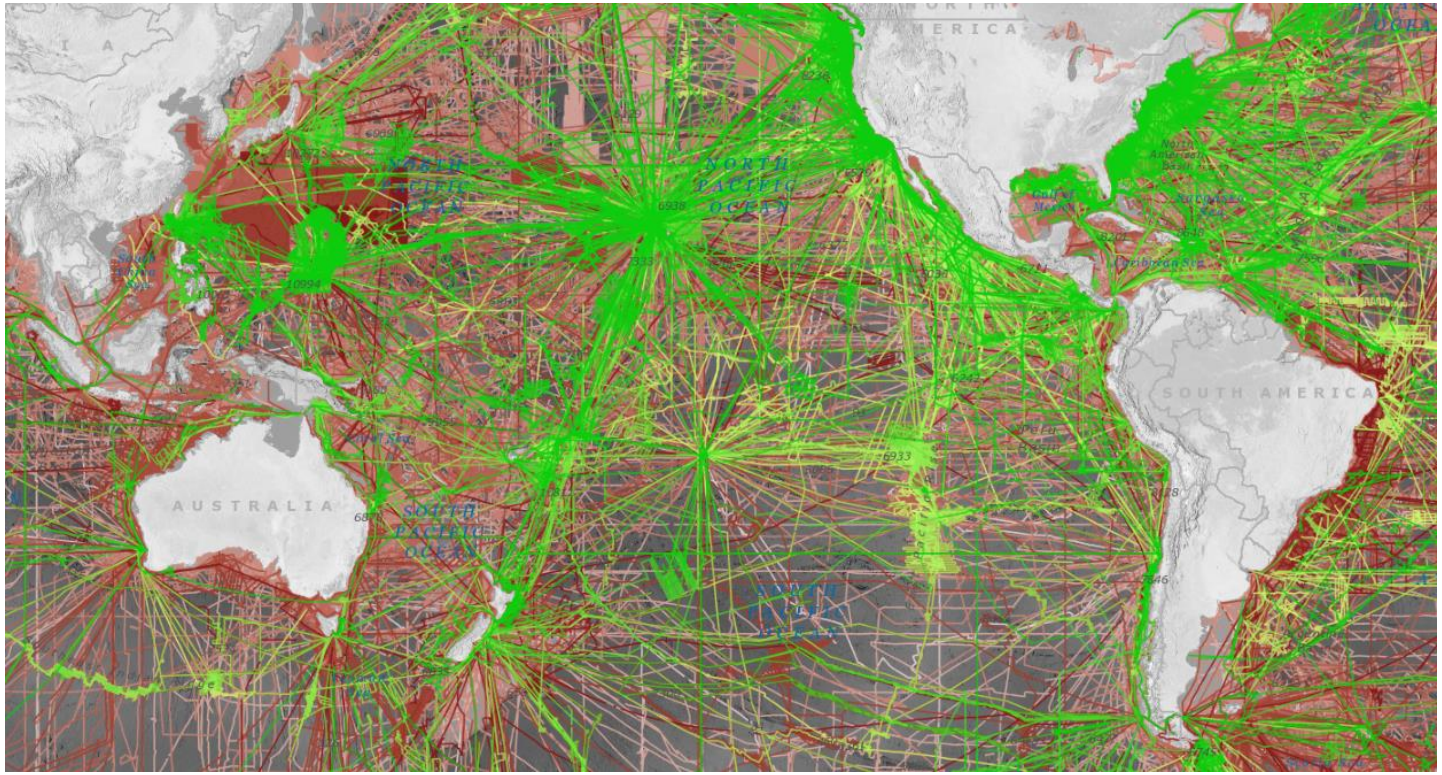
International Hydrographic Organization

Today's Talk - The IHO DCDB

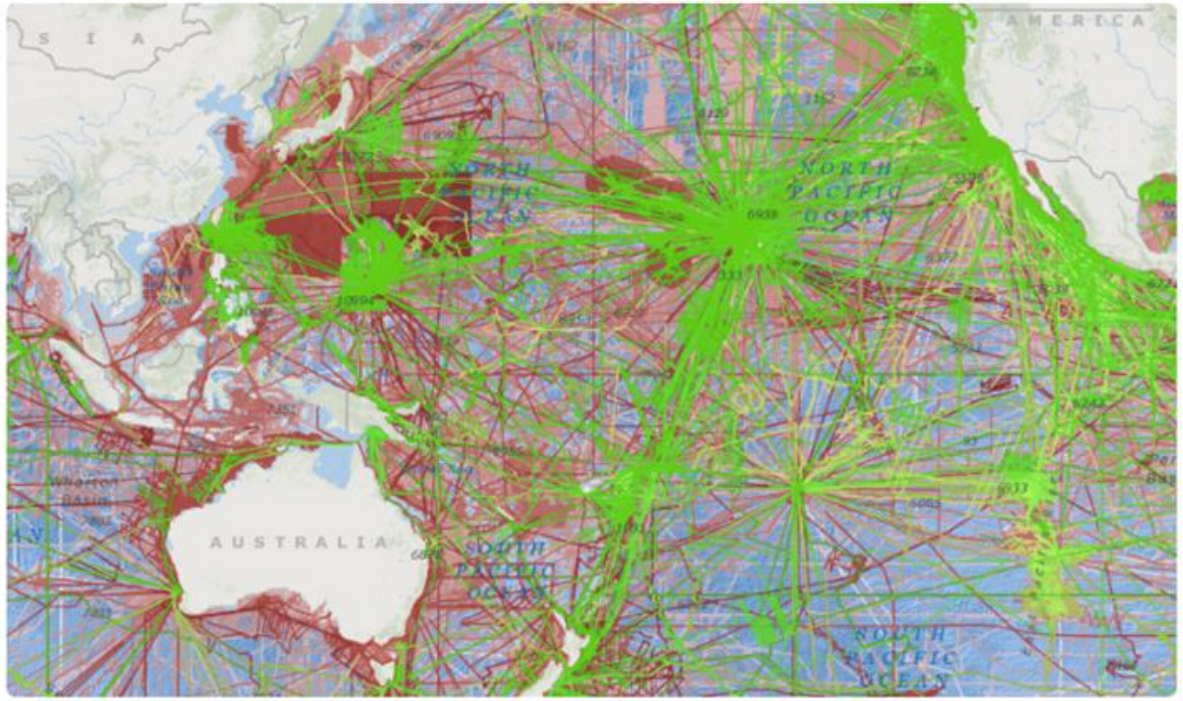
- Overview
- Data Holdings and Contributions
- Recent & Upcoming Enhancements



IHO DCDB Home | Contribute Data | Crowdsourced Bathymetry | CSB Mapping Projects

IHO Data Centre for Digital Bathymetry (DCDB)

The IHO DCDB was established in 1990 to steward the worldwide collection of bathymetric data. The Centre archives and shares, freely and without restrictions, depth data contributed by mariners. The IHO DCDB is hosted by the U.S. National Oceanic and Atmospheric Administration (NOAA) on behalf of the IHO Member States.



IHO DCDB Data Viewer highlighting ship tracks and data availability over the Pacific Ocean and neighboring regions

The DCDB archive includes over 30 terabytes of oceanic depth soundings acquired with multibeam and singlebeam sonars by hydrographic, oceanographic and industry vessels during surveys or while on passage.

The DCDB also archives and provides access to data contributed in support of the IHO Crowdsourced Bathymetry (CSB) initiative.

The IHO DCDB Data Viewer shows the global coverage of the DCDB's bathymetric data holdings as well as the spatial extent of data archived at other repositories via web services.

Access Data

ngdc.noaa.gov/iho/

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May 2023: A Memorandum of Understanding was signed to reaffirm NOAA's relationship with the IHO as the host of the IHO DCDB

During the IHO Assembly, the signing of the MoU was recognized by IHO Secretary General Dr. Mathias Jonas and Rear Admiral Benjamin Evans, U.S. National Hydrographer and Director of NOAA’s Office of Coast Survey.

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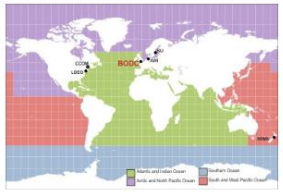
Seabed 2030 Centers

Seabed 2030 consists of four Regional Centers and a Global Center.

The Regional Centers are responsible for championing mapping activities, assembling and compiling bath
collaborating with existing mapping initiatives within their regions. The Global Center is responsible for pr
global GEBCO products.

The IHO Data Center for Digital Bathymetry and other national data repositories serve as long-term archiv
distributors of source bathymetry data sets. Seabed 2030 encourages the submission of source data to th
center leads for further information on how to contribute data and get involved.

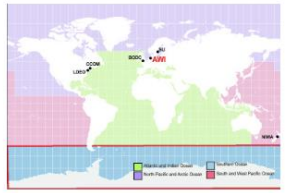
In order to achieve their goals of full seafloor coverage, the Regional Centers will collaborate with existing
initiatives.



Global Center

Hosted at the British Oceanographic Data Centre (BODC), National Oceanography Centre (NOC), UK.

Learn more >



Southern Ocean Regional Center

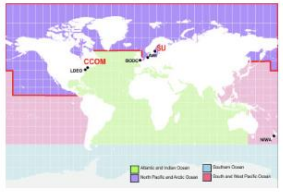
Hosted at the Alfred Wegener Institute (AWI), Germany.

Learn more >

Atlantic Oceans

Hosted at th
Observatory
University, U

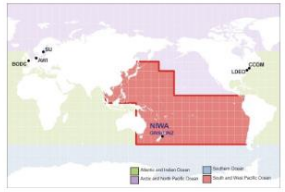
Learn mor



Arctic and North Pacific Ocean Regional Center

Hosted at Stockholm University (SU), Sweden and the Center for Coastal and Ocean Mapping at the University of New Hampshire (UNH), USA.

Learn more >



South and West Pacific Ocean Regional Center

Hosted at the National Institute of Water and Atmospheric Research (NIWA), New Zealand.

Learn more >

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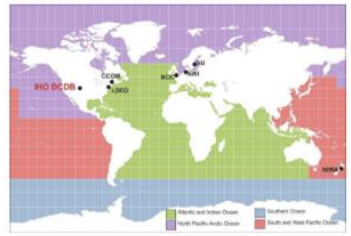
Home » Seabed 2030 Centers

IHO Data Center for Digital Bathymetry

Center Head

Jennifer Jencks



Contact:
mb.info@noaa.gov

Center Role

The Data Center is hosted by the US National Oceanic and Atmospheric Administration (NOAA), Boulder, Colorado on behalf of the IHO Member States. It is one of Seabed 2030's network of regional and global centers.

Center Overview

The International Hydrographic Organization Data Center for Digital Bathymetry (IHO-DCDB) was established in 1990 to steward the worldwide collection of bathymetric data. The Center archives and shares, freely and without restrictions, depth data acquired by hydrographic, oceanographic and other vessels during surveys or while on passage.

Data can be discovered and accessed from the IHO-DCDB Data Viewer.

The DCDB consists of over 30 terabytes of primarily unedited single and multibeam bathymetric data contributed by industry, government, academia, and crowdsourced efforts. These data holdings are routinely used for the production of improved and more comprehensive bathymetric maps and grids, particularly in support of the GEBCO Ocean Mapping Programme.

In addition to the four Seabed 2030 Regional Centers, which focus on discovering, gathering and assembling bathymetric data in their areas to produce regional datasets and products, and the Global Center, which produces the GEBCO Grid, the DCDB acts as the central repository for all raw bathymetric data and all data compiled by Seabed 2030. The DCDB cooperates closely with Seabed 2030 and engages with international maritime, industry and intergovernmental organizations involved in ocean mapping and crowdsourcing initiatives to coordinate a global approach.

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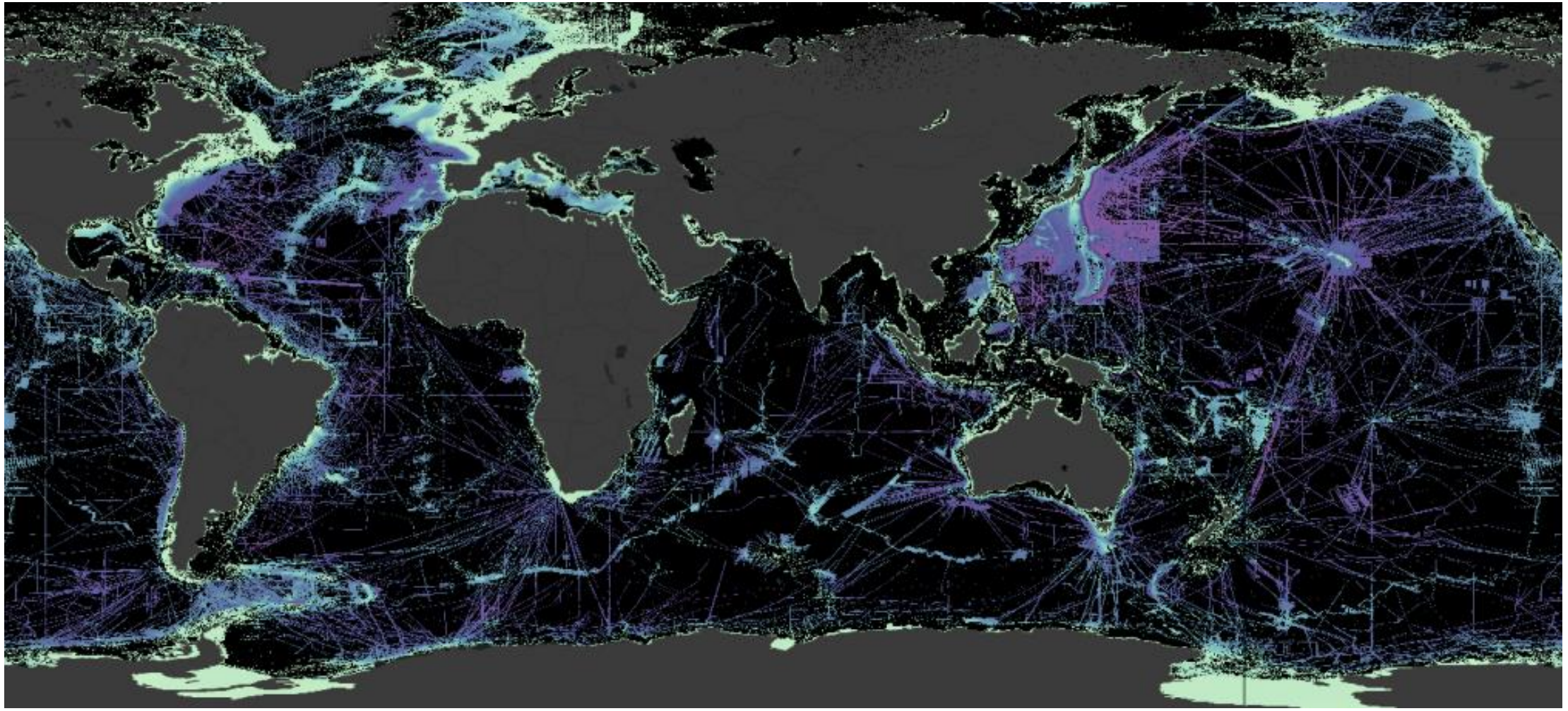
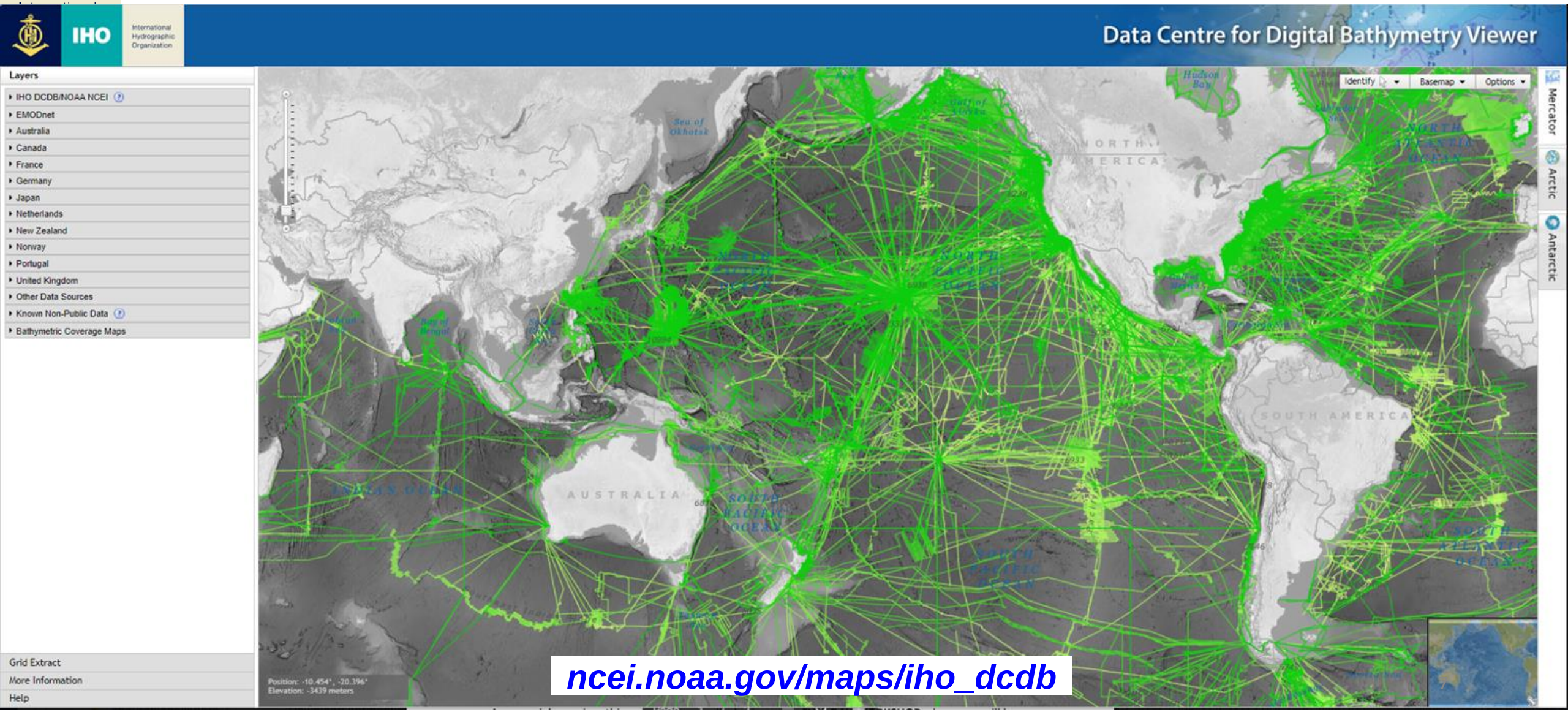
GEBCO 2023 Grid

GEBCO 2017 grid = 6%
GEBCO 2023 grid = 24.9%

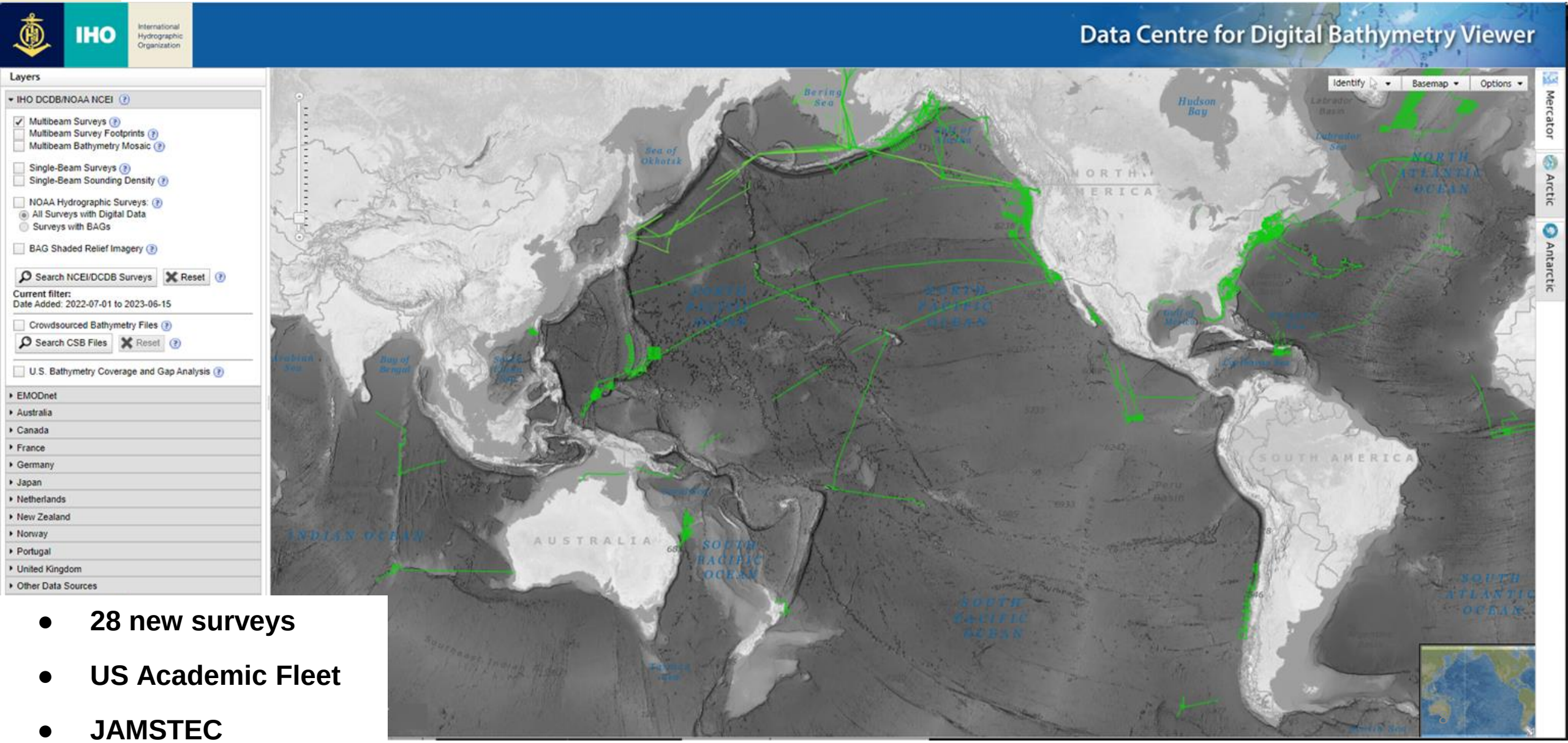


DCDB Data Holdings

The estimated global seafloor coverage held in the DCDB multibeam archive is calculated to be ~12%

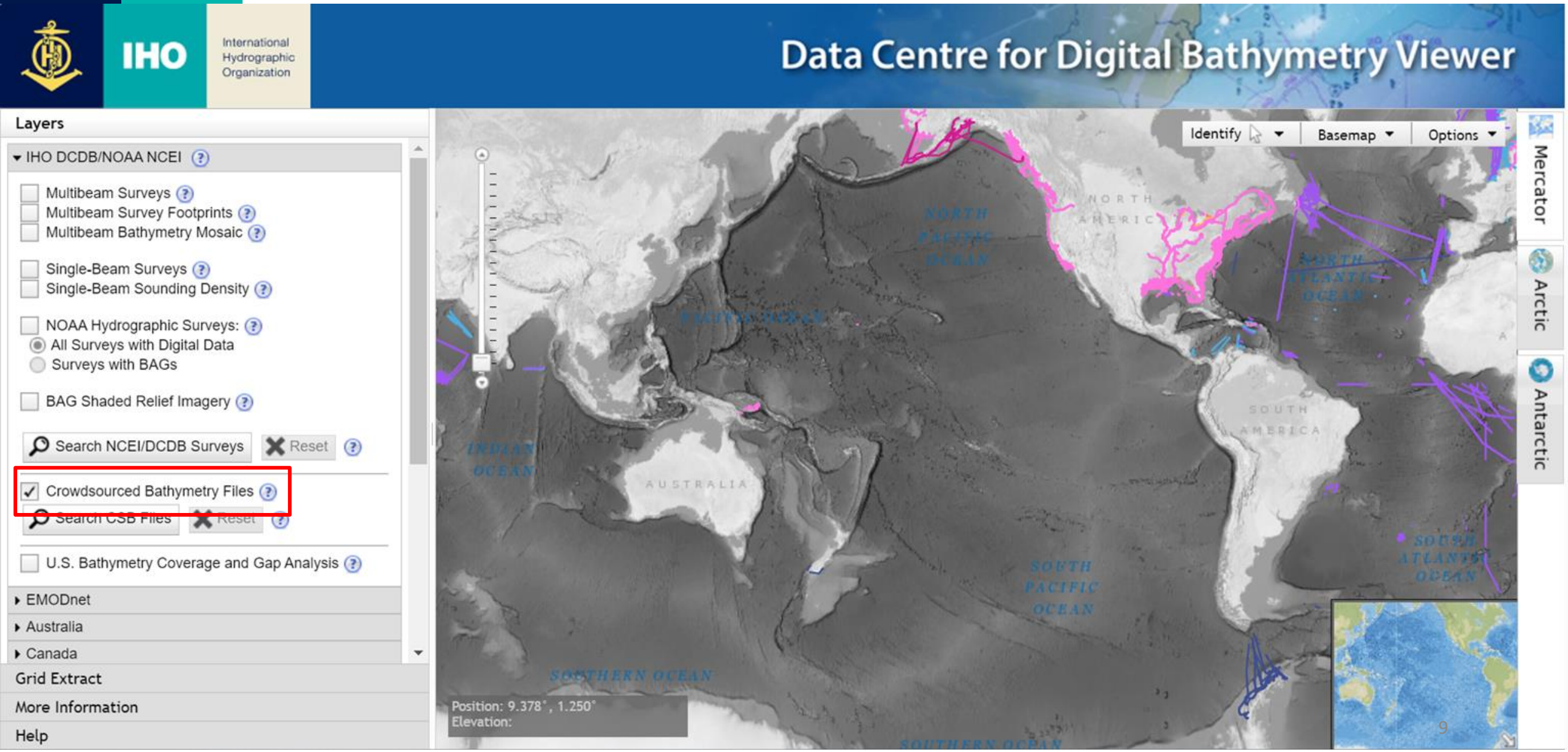


DCDB - New Data Holdings

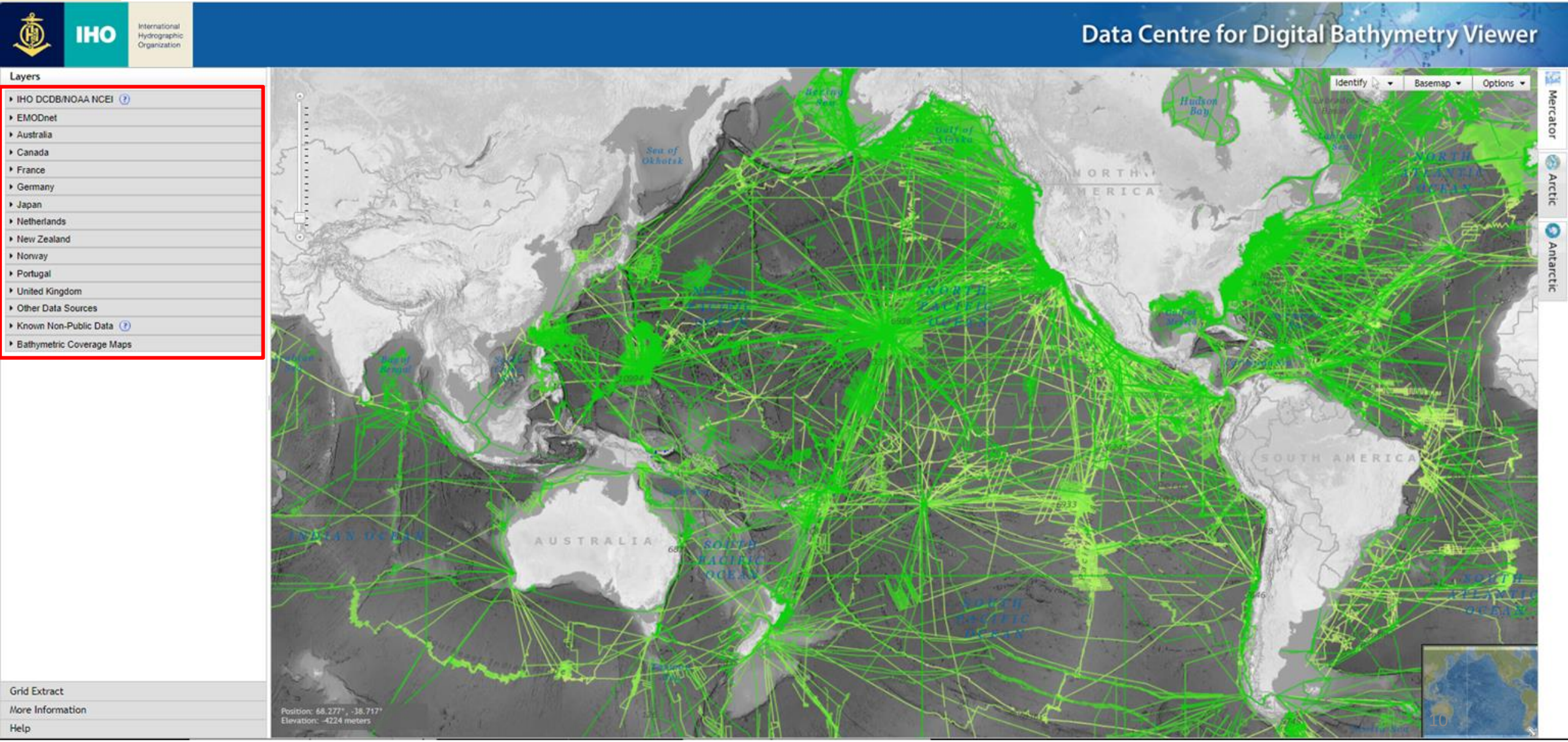


- 28 new surveys
- US Academic Fleet
- JAMSTEC

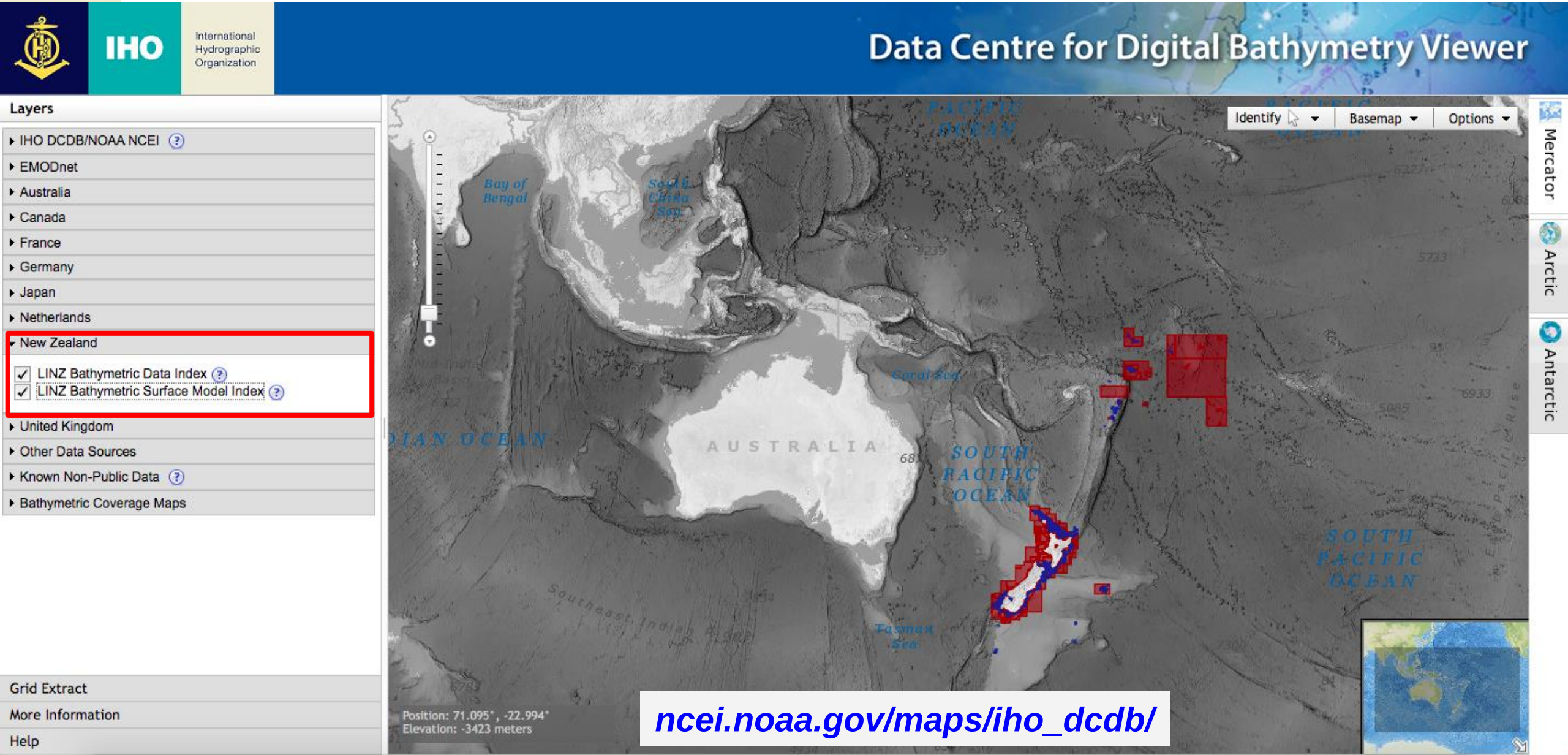
DCDB Data Holdings: Crowdsourced Bathymetry



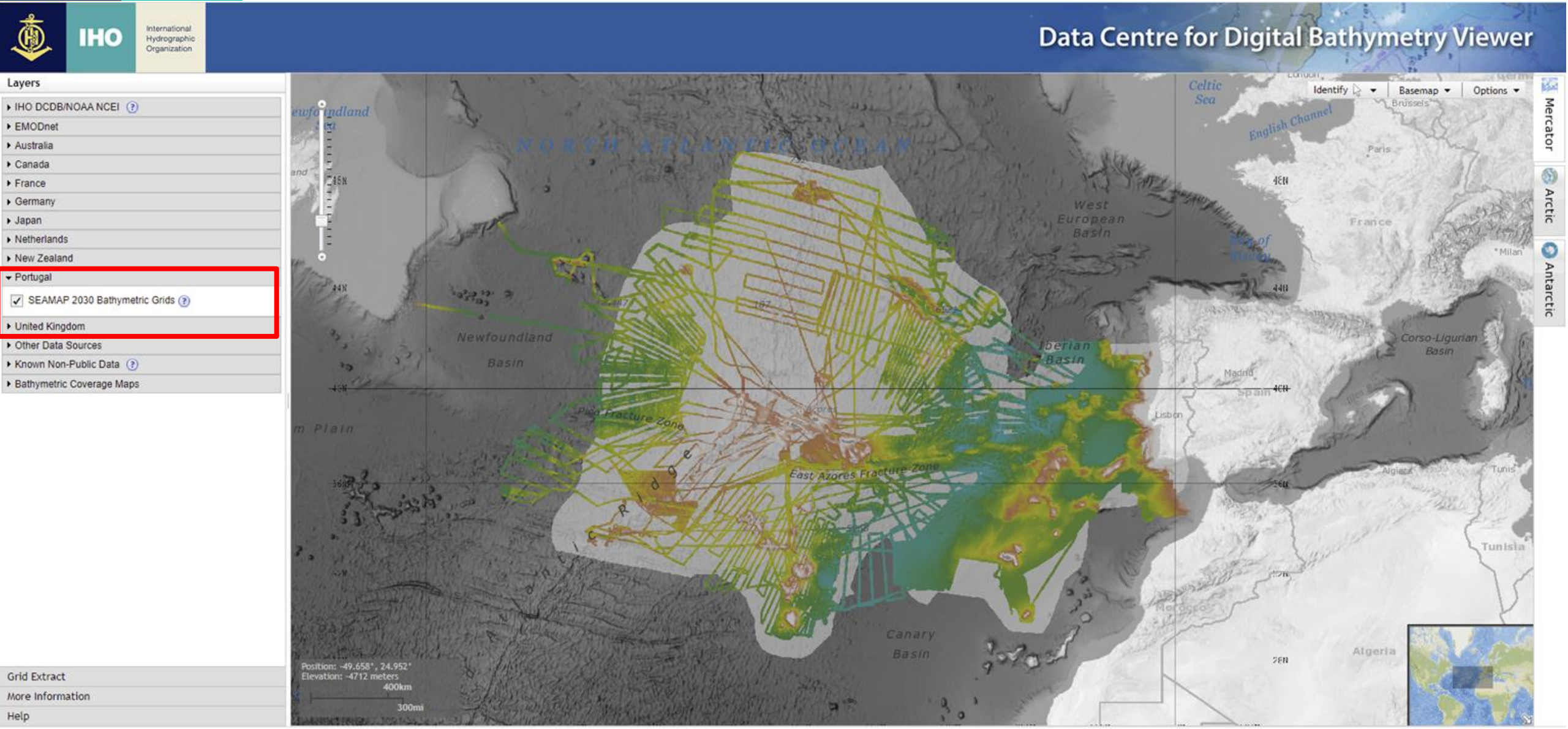
DCDB Web Services



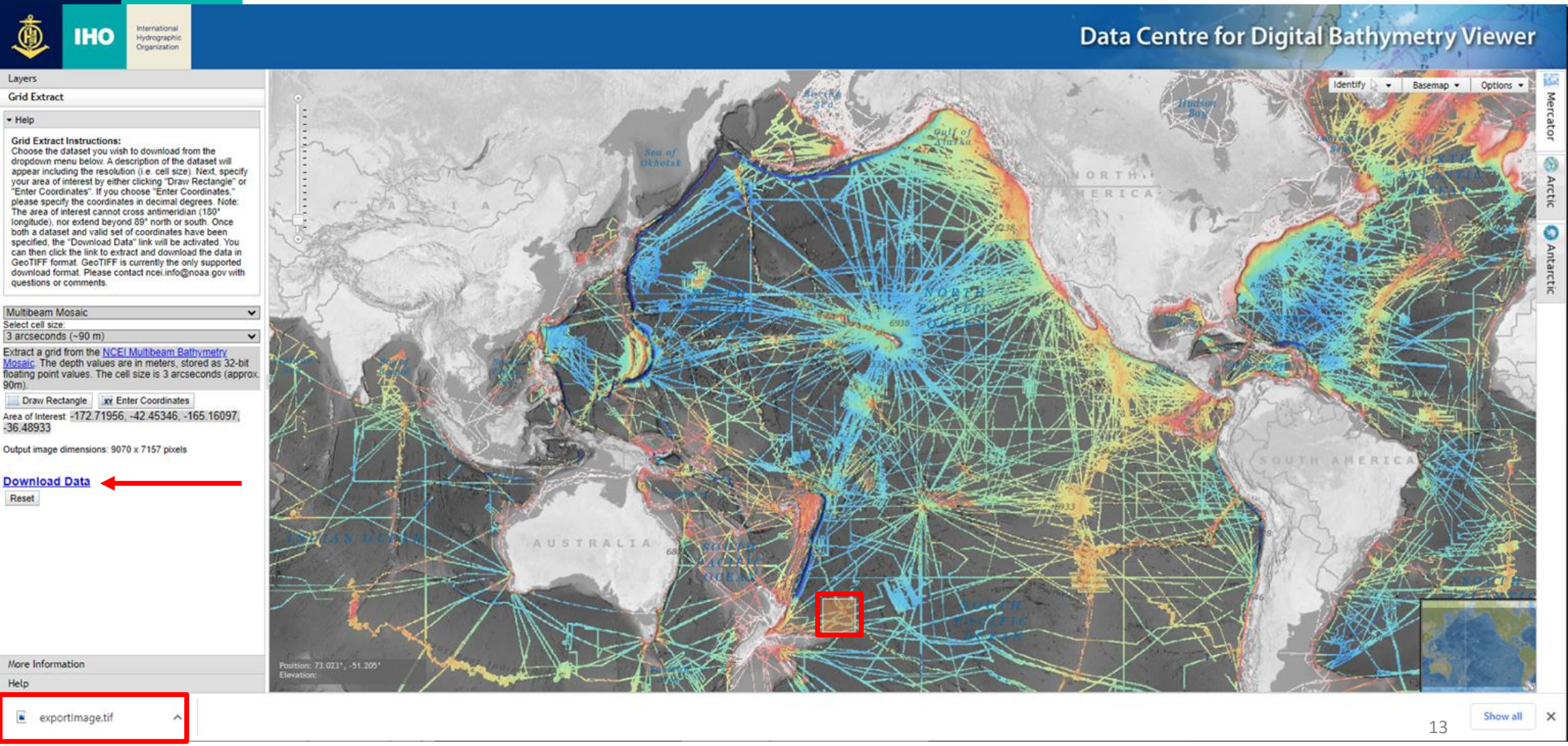
DCDB Web Services: LINZ



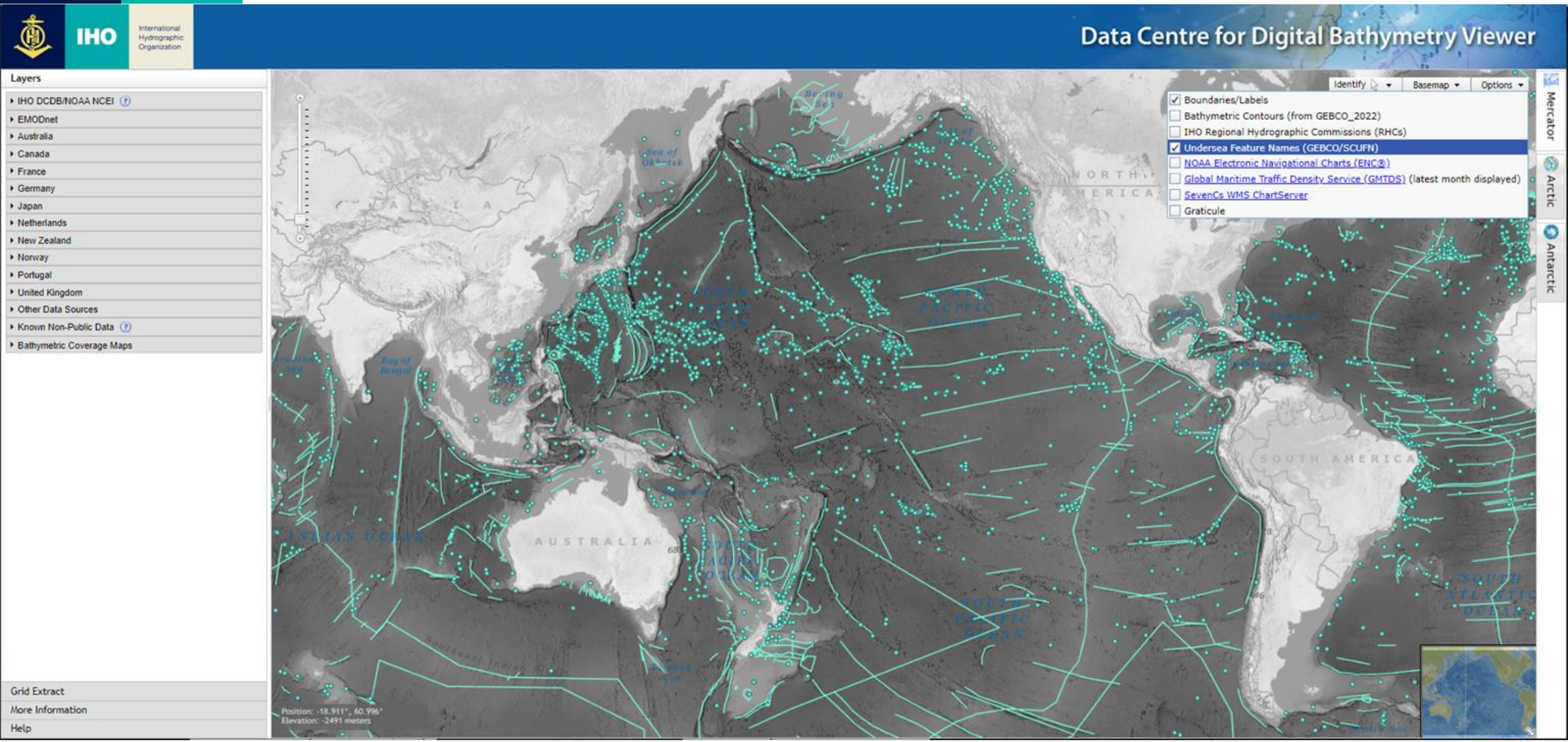
DCDB Web Services: Portugal



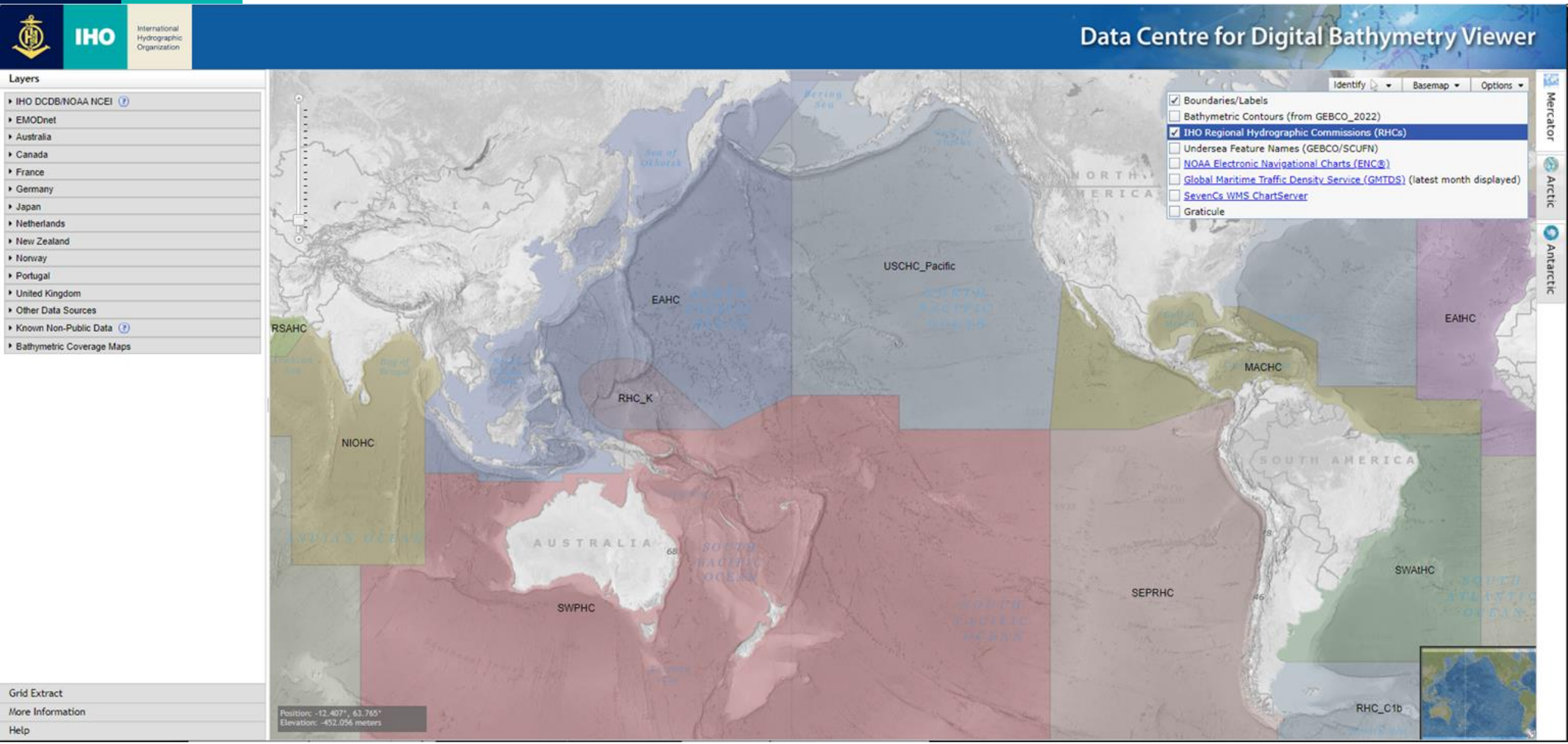
DCDB Viewer: Grid Extract Tool



Undersea Feature Names



Regional Hydrographic Commissions



DCDB Viewer: Planned Enhancements

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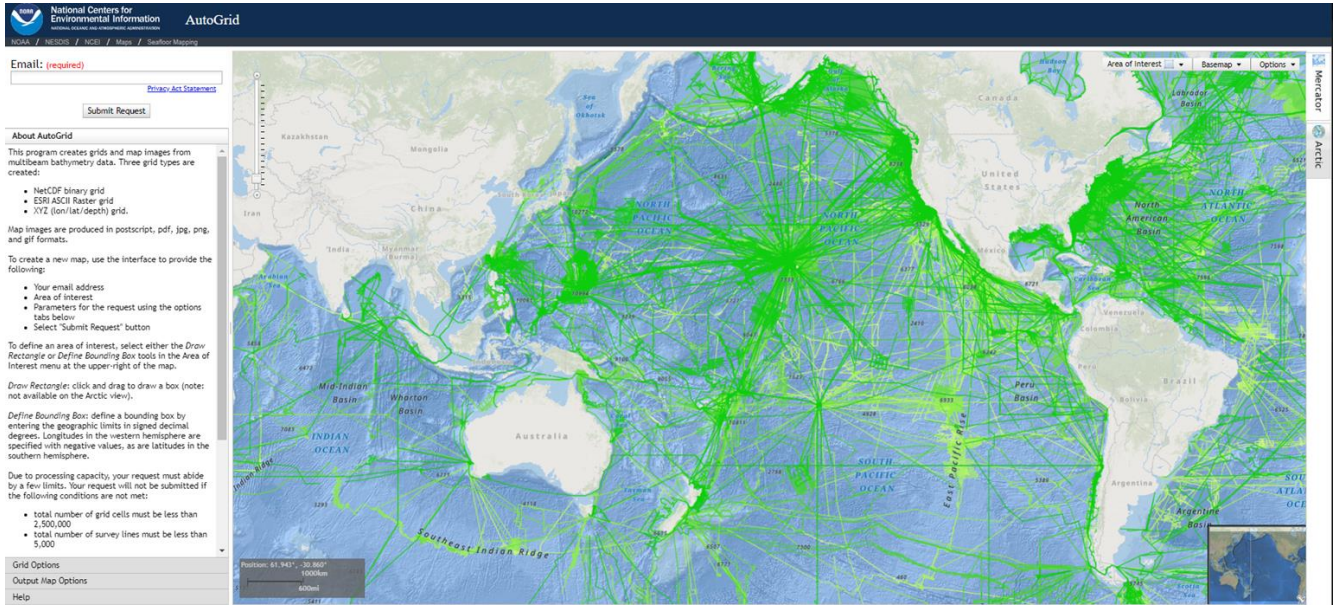
- Finalize migration to new database schema
  - Versioning of processed swath files
  - Discovery of backscatter & ancillary files
  - Indicating polygons of extent of coverage
- AutoGrid is a web app
- AutoGrid 2.0



ncei.noaa.gov/maps/autogrid/

How to Contribute Data to the IHO DCDB

Contact bathydata@iho.int for more information on contributing data or sharing web services to the IHO DCDB.
Refer to Submitting Marine Geophysical Data to the IHO DCDB for how to package and submit data.

Governments, organizations, academia, industry and individuals are encouraged to contribute data to the IHO DCDB.

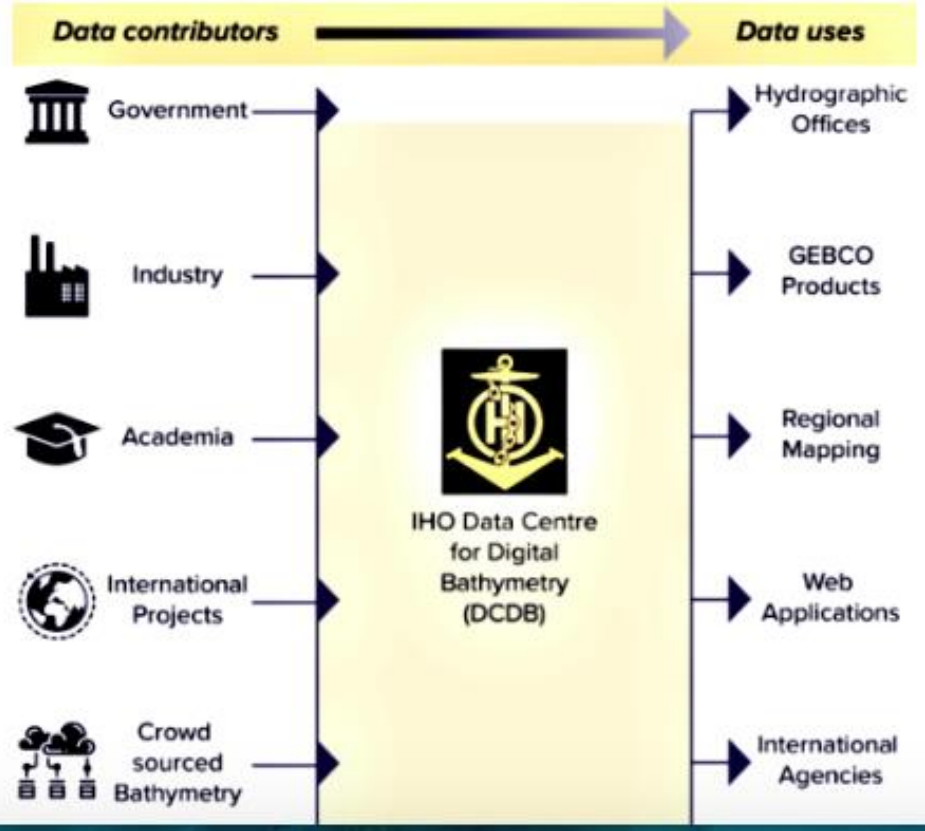
Bathymetric data and metadata can be submitted via File Transfer Protocol (FTP), email, or mail (hard drive) in the formats listed below.

- **Raw sonar data:** MGD77T or the original manufacturer's format
- **Processed data:** gsf, BAG, NetCDF, tiff, xyz, sd, asc, etc.
- **Metadata:** XML or text

Other formats and products will be considered on a case-by-case basis.

Learn more about contributing *crowdsourced bathymetry*.

IHO Member States are invited to provide sounding data extracted from their Electronic Navigational Charts (ENC). Only soundings from ENC cells in navigational purpose bands 2 and 3 are requested. For more information, please refer to IHO Circular Letter 11/2016.



IHO DCDB Resources

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Data management guidelines and metadata templates to encourage data collectors to becoming data providers.

Guidelines cover:

- Acceptable data file formats
- Metadata
- Requested file directory structure

https://www.ngdc.noaa.gov/iho/

Data File Structure:

The data may be delivered in one archived file (e.g., tar or zip) in a well-defined directory structure. Please include an MD5 checksum with the delivery so NCEI can verify the integrity of the files and the completeness of the data transfer. For questions regarding MD5 checksums, contact mb.info@noaa.gov.

A preferred data structure would be the following:

```
.
└── cruise_ID
    ├── cruise_reports_and_docs.txt
    ├── multibeam
    │   └── data
    │       ├── version1
    │       │   ├── ancillary
    │       │   │   └── ssp_svp_nav_tracklines_etc
    │       │   ├── MB
    │       │   │   └── instrument_name
    │       │   │       └── raw_as_collected_data_files.all
    │       │   ├── metadata
    │       │   │   └── dataset_level_metadata.xlsx
    │       │   └── products
    │       │       └── grids_images_other_derived_products
    │       └── version2
    │           ├── ancillary
    │           │   └── ssp_svp_nav_tracklines_etc
    │           ├── MB
    │           │   └── instrument_name
    │           │       └── processed_data_files.gsf
    │           ├── metadata
    │           │   └── processed_details_metadata.xlsx
    │           └── products
    │               └── grids_images_other_derived_products
    ├── side-scan_sonar
    │   ├── data
    │   │   └── include_all_raw_files
    │   └── metadata
    │       └── dataset_level_metadata.txt
    ├── singlebeam
    │   ├── data
    │   │   └── include_all_raw_files
    │   └── metadata
    │       └── dataset_level_metadata.txt
    ├── subbottom
    │   ├── data
    │   │   └── include_all_segy_files
    │   └── metadata
    │       └── dataset_level_metadata.txt
    └── wcsd
        ├── data
        │   └── include_all_raw_files
        └── metadata
            └── dataset_level_metadata.txt
```

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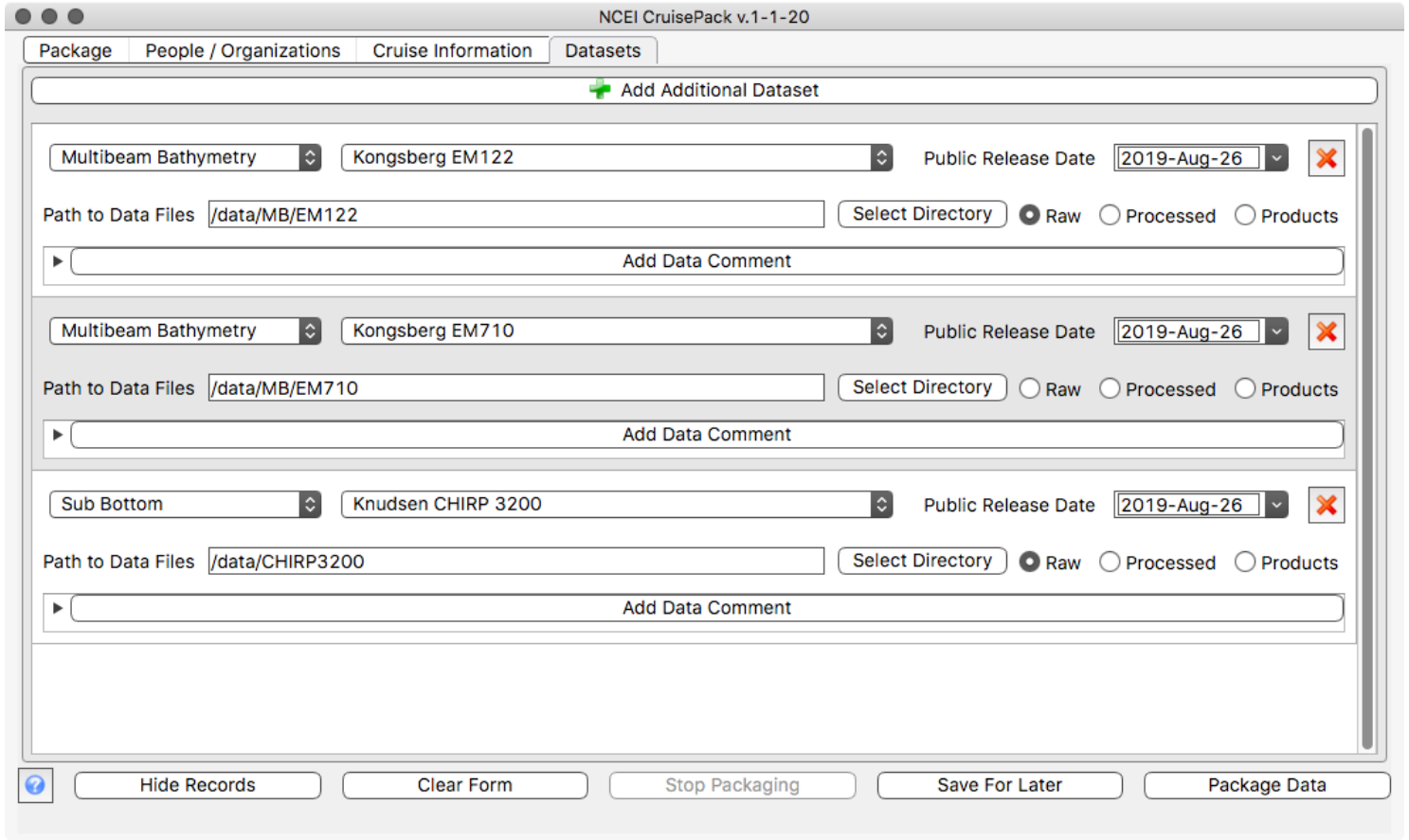
Cruise Data Packager (CruisePack)

One tool to pack it all...

- Stand-alone packager for cruise-based data.
- Simple user interface with pulldown menus and controlled vocabularies
- Generates cruise-level and series level metadata files
- Creates consistent data packages



ncei.noaa.gov/products/cruisepack

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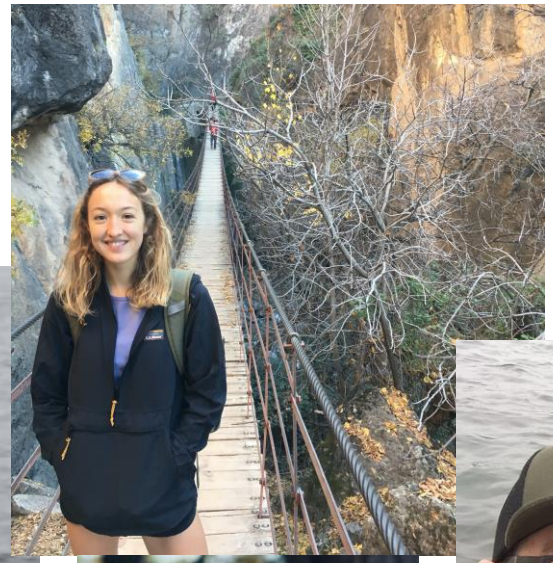
IHO DCDB Resources: Your Friendly Data Managers



IHO DCDB Resources - Links

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DCDB Homepage

- *ngdc.noaa.gov/iho/*

DCDB Map Viewer

- *ncei.noaa.gov/maps/iho_dcdb*

Autogrid

- *ncei.noaa.gov/maps/autogrid/*

CruisePack

- *ncei.noaa.gov/products/cruisepack*

christiane.reiser@noaa.gov

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Questions?

- Are there any questions on accessing data from the DCDB?
- Does anyone need more information on contributing data to the DCDB?
- Please let me know if anyone is interested in adding your web service to the DCDB?
- Any other questions?

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