

THE NIPPON FOUNDATION-GEBCO

SEABED 2030

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IHO

International
Hydrographic
Organization



United Nations
Educational, Scientific and
Cultural Organization



Intergovernmental
Oceanographic
Commission

Introduction:

The Nippon Foundation – GEBCO Seabed 2030 Project



What is Seabed 2030?

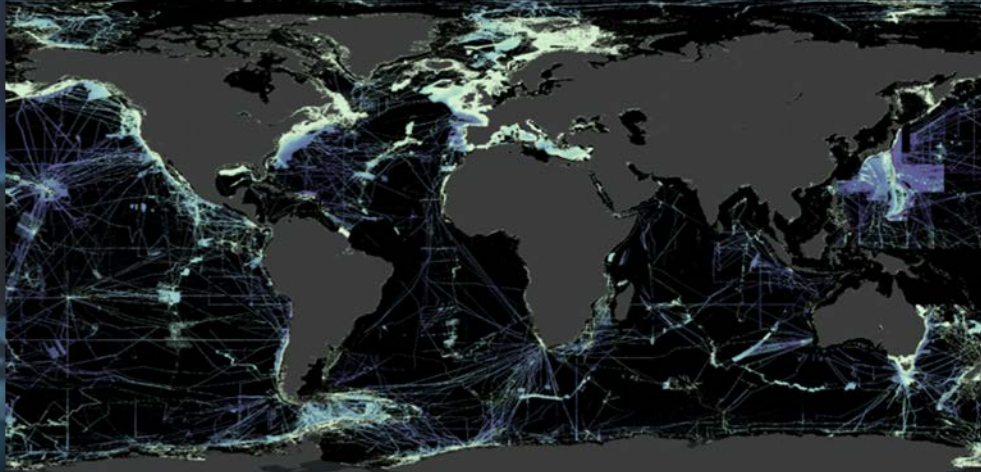
The Nippon Foundation - GEBCO Seabed 2030 Project is a collaborative project to inspire the complete mapping of the world's ocean by 2030, and to compile all bathymetric data into the freely-available GEBCO Ocean Map.

Seabed 2030 aspires to empower the world to make policy decisions, use the ocean sustainably, and undertake scientific research that is informed by a detailed understanding of the global ocean floor.



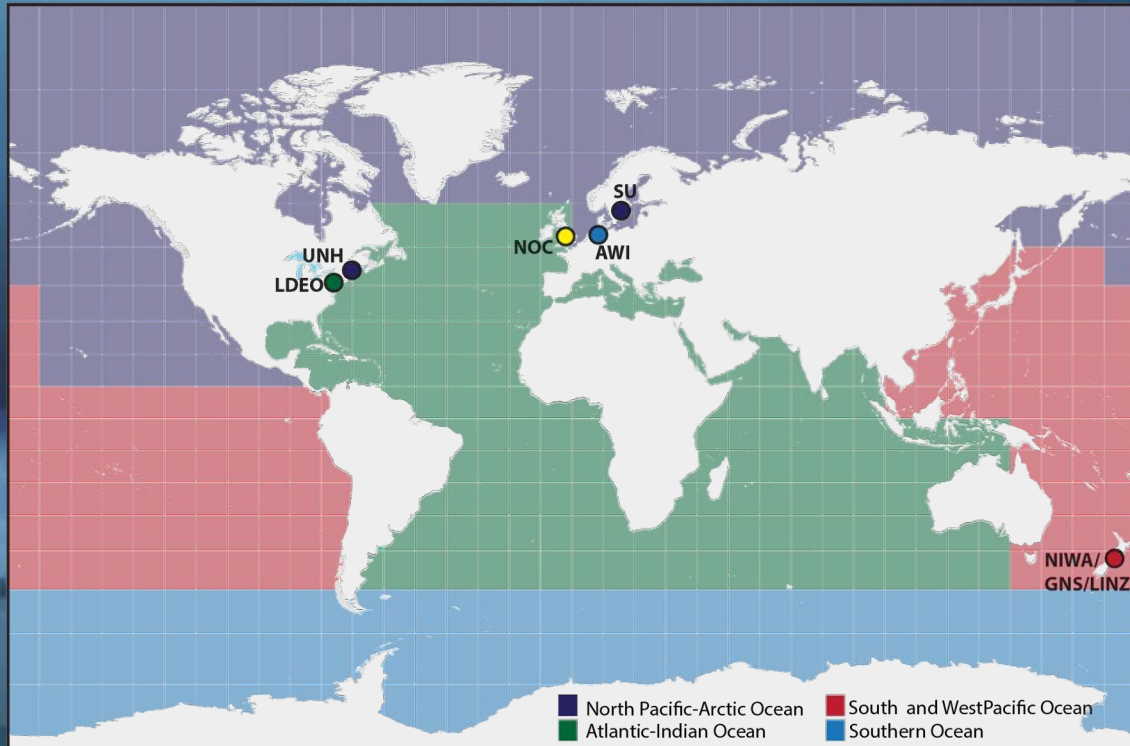
Why is Seabed 2030 Important?

- Bathymetry data is an essential ocean observation
- Seabed mapping data has broad use and value
- Ocean processes extend beyond territorial waters
- Only ~20% of the ocean has been mapped with direct observation
- Mapping the entire ocean is a massive task that can only be achieved through cooperation and coordination

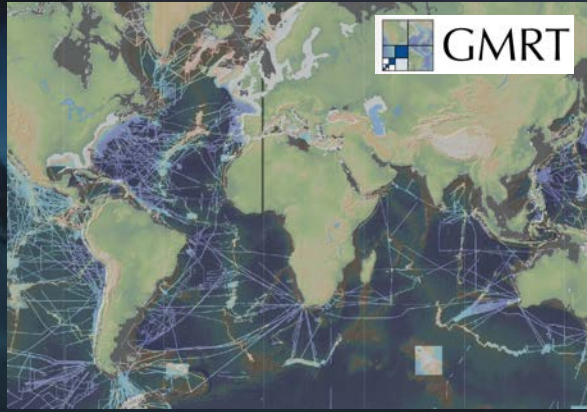
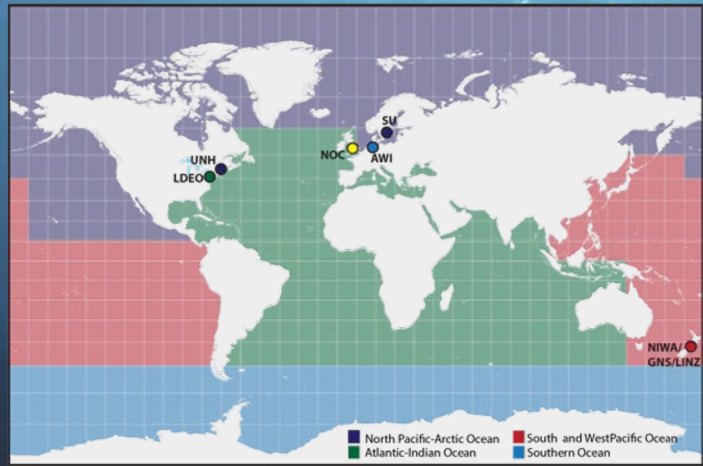
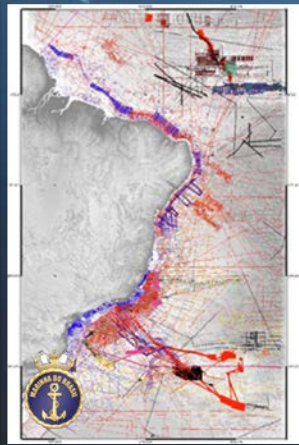


Seabed 2030: Regional Approach

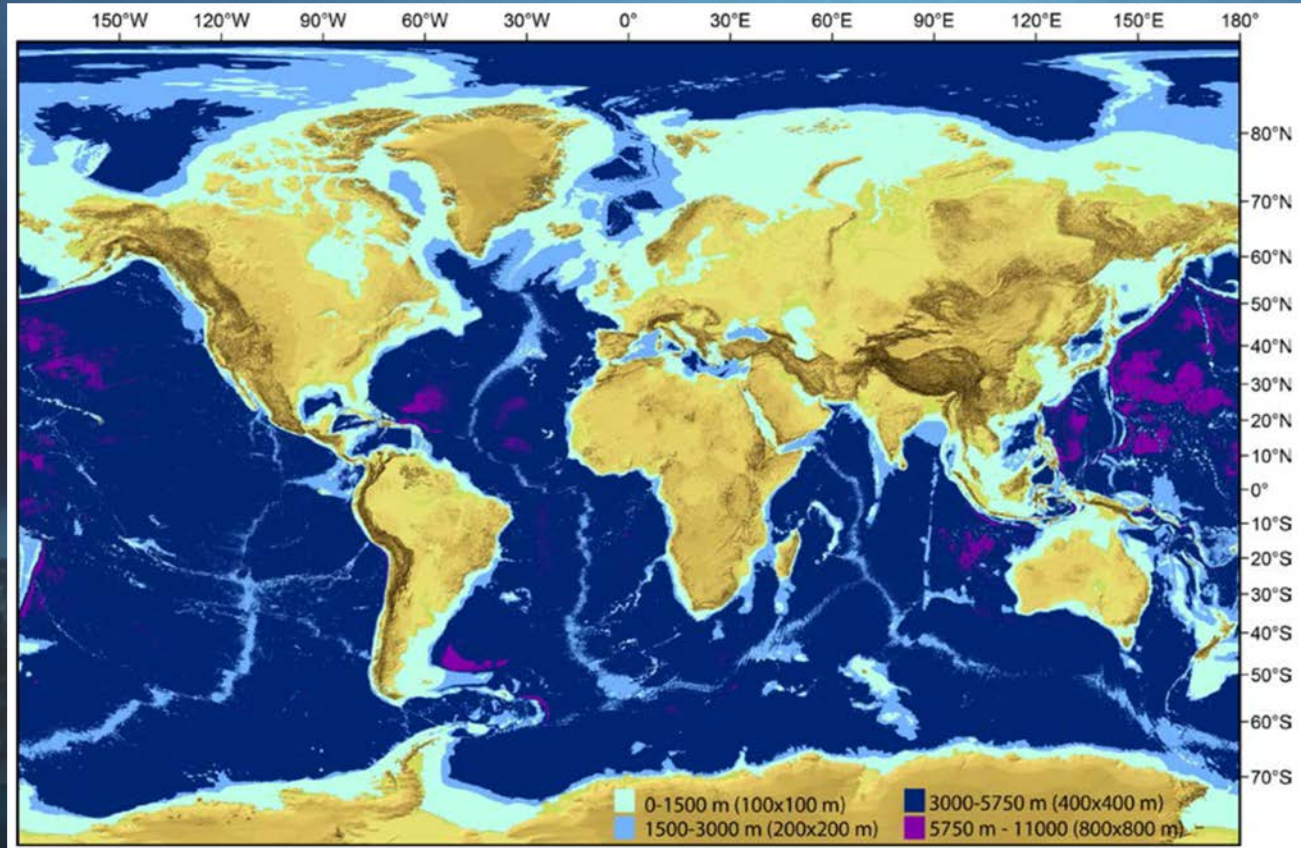
- Regional Centers (RDACCs)
 - Engage with stakeholders
 - Build upon existing efforts
 - Assemble regional products
 - Identify gaps
- Global Center (GDACC)
 - Assemble global products
 - Disseminate global products



Collaborate with existing data synthesis efforts



What does 100% mapped mean?

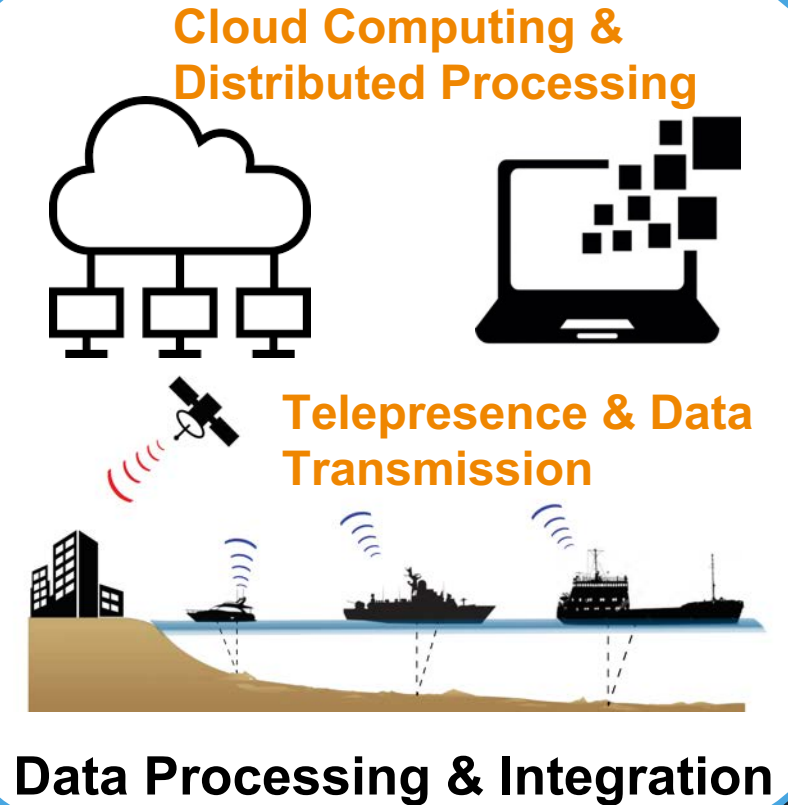


Accelerating Toward 2030: *Collaboration & Capacity Development*

- Learn from one another
- Leverage efforts to work toward common goals
- Share data, approaches, workflows, tools
- Develop new collaborations and opportunities
- Prioritization and mapping campaigns
- Capacity development
- Power of the crowd
- One ocean, one planet



Accelerating Toward 2030: *Technical Innovation*



The IHO Crowdsourced Bathymetry Initiative

In 2014, the IHO initiated a collaborative project to enable mariners to collect “crowdsourced bathymetry”.

A Working Group was formed and tasked to develop ***B-12 IHO Guidance on Crowdsourced Bathymetry*** that states the IHO’s policy towards, and best practices for, the collection and contribution of CSB.

IHO DCDB built a data pipeline that allows the public to contribute, and then discover and download CSB data via a web-based map viewer interface.



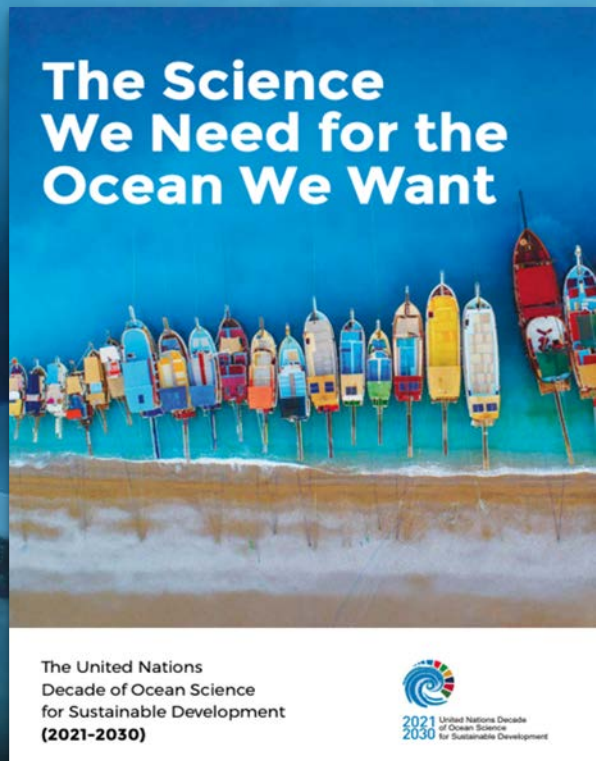
UN Decade of Ocean Science for Sustainable Development (2021-2030)

- A clean ocean
- A healthy and resilient ocean
- A productive ocean
- A predicted ocean
- A safe ocean
- An accessible ocean
- An inspiring and engaging ocean





CONSERVE AND SUSTAINABLY USE THE OCEANS, SEAS AND MARINE RESOURCES FOR SUSTAINABLE DEVELOPMENT

14 LIFE BELOW WATER



The Science We Need for the Ocean We Want

The United Nations
Decade of Ocean Science
for Sustainable Development
(2021-2030)



THE DECADE WILL PROVIDE A 'ONCE IN A LIFETIME' OPPORTUNITY FOR NATIONS TO WORK TOGETHER TO GENERATE THE GLOBAL OCEAN SCIENCE NEEDED TO SUPPORT THE SUSTAINABLE DEVELOPMENT OF OUR SHARED OCEAN.

Accessing Data



GEBCO Products

- Global gridded bathymetric data
 - 2014: 30 arc-second grid
 - 2019, 2020: 15 arc-second grid
- Gazetteer of Undersea Feature Names
- Digital Atlas
- Grid viewing software
- Printable maps
- Web Map Service (WMS)
- IHO-IOC GEBCO Cook Book

Home Data & Products Seabed 2030 Training News & Media About Contact


IHO International Hydrographic Organization UNESCO United Nations Educational, Scientific and Cultural Organization IOC International Oceanographic Commission

General Bathymetric Chart of the Oceans
GEBCO

GEBCO aims to provide the most authoritative, publicly available bathymetry data sets for the world's oceans.

Download GEBCO's global grid Download polar grids Contribute data

Gridded Bathymetry Data



GEBCO's gridded bathymetric data sets are global terrain models for ocean and land. The grids are available to download or access through Web Map Services.

Read more

Data & Products



GEBCO produces and makes available a range of bathymetric data sets and products. This includes a global bathymetric grid; gazetteer of undersea feature names, a Web Map Service and printable maps of ocean bathymetry.

Read more

Seabed 2030



Seabed 2030 is a collaborative project between the Nippon Foundation and GEBCO. It aims to bring together all available bathymetric data to produce the definitive map of the world ocean floor by 2030 and make it available to all.

Read more

Download the GEBCO grid from: gebco.net or seabed2030.org

How to Access the GEBCO Grid



Home > Data & Products > Gridded Bathymetry Data

Global ocean & land terrain models

GEBCO's gridded bathymetric data set, the GEBCO_2020 grid, is a global terrain model for ocean and land at 15 arc-second intervals. It is accompanied by a Type Identifier (TID) Grid that gives information on the types of source data that the GEBCO_2020 Grid is based.

- [Download global coverage grids](#)
- [Download data for user-defined areas](#)

More [information](#) about the grid, its terms of use and attribution.

Download global coverage grids

The GEBCO_2020 Grid and TID Grid can be downloaded as global files in netCDF format or a set of 8 tiles (each with an area of 90° x 90°), giving global coverage, in Esri ASCII raster and data GeoTiff formats. The data files are included in a zip file along with the data set documentation.

GEBCO_2020 Grid	netCDF (4 Gbytes, 7.5 Gbytes uncompressed)	Data GeoTiff (4 Gbytes, 8 Gbytes uncompressed)	Esri ASCII raster (5 Gbytes, 20 Gbytes uncompressed)
GEBCO_2020 TID Grid	netCDF 90 Mbytes, 4 Gbytes uncompressed)	Data GeoTiff (96 Mbytes, 7 Gbytes uncompressed)	Esri ASCII raster (108 Mbytes, 9.5 Gbytes uncompressed)

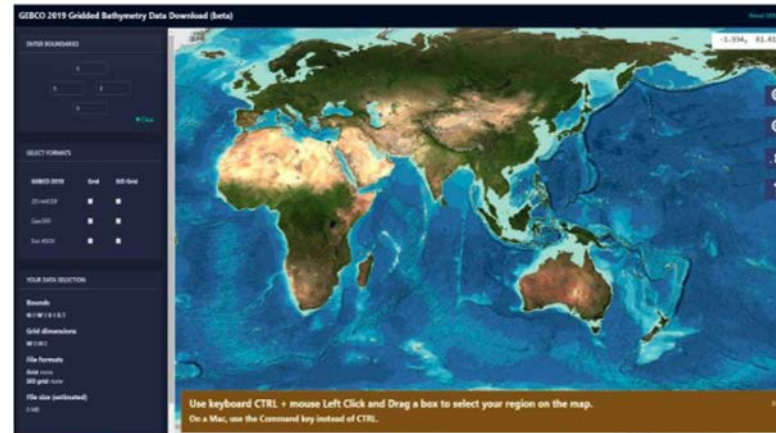
Jump to

- > [Seabed 2030](#)
- > [Contribute data](#)
- > [IBCAO_v4](#)
- > [GEBCO Web Services](#)
- > [Printable maps](#)
- > [Historical GEBCO data sets](#)
- > [Imagery](#)
- > [Undersea feature names](#)
- > [Historical GEBCO charts](#)
- > [IHO-IOC GEBCO Cook Book](#)
- > [History of GEBCO book](#)

Share this

Download data for user-defined areas

Use our [application](#) to select and download data in netCDF, Esri ASCII raster and data GeoTiff formats.



Download the GEBCO grid from: gebcoset.org or seabed2030.org

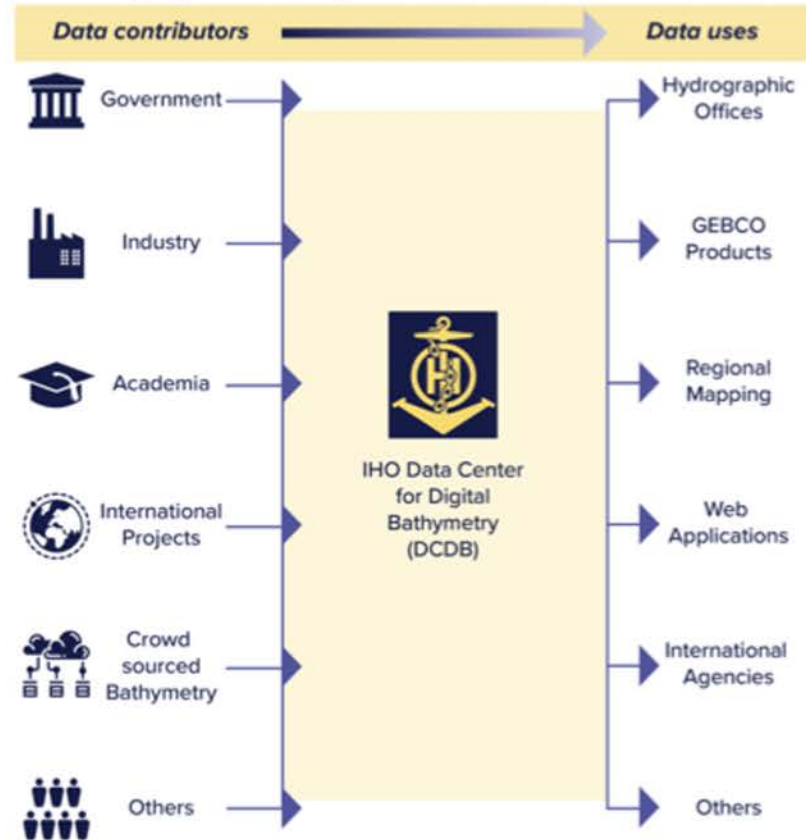


IHO Data Center for Digital Bathymetry (DCDB)

The IHO DCDB is the recognized IHO repository for all ocean bathymetric data.

The DCDB works closely with the Seabed 2030 Project to provide long-term preservation, discovery and access of source bathymetry data.

www.ngdc.noaa.gov/iho/



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](#)





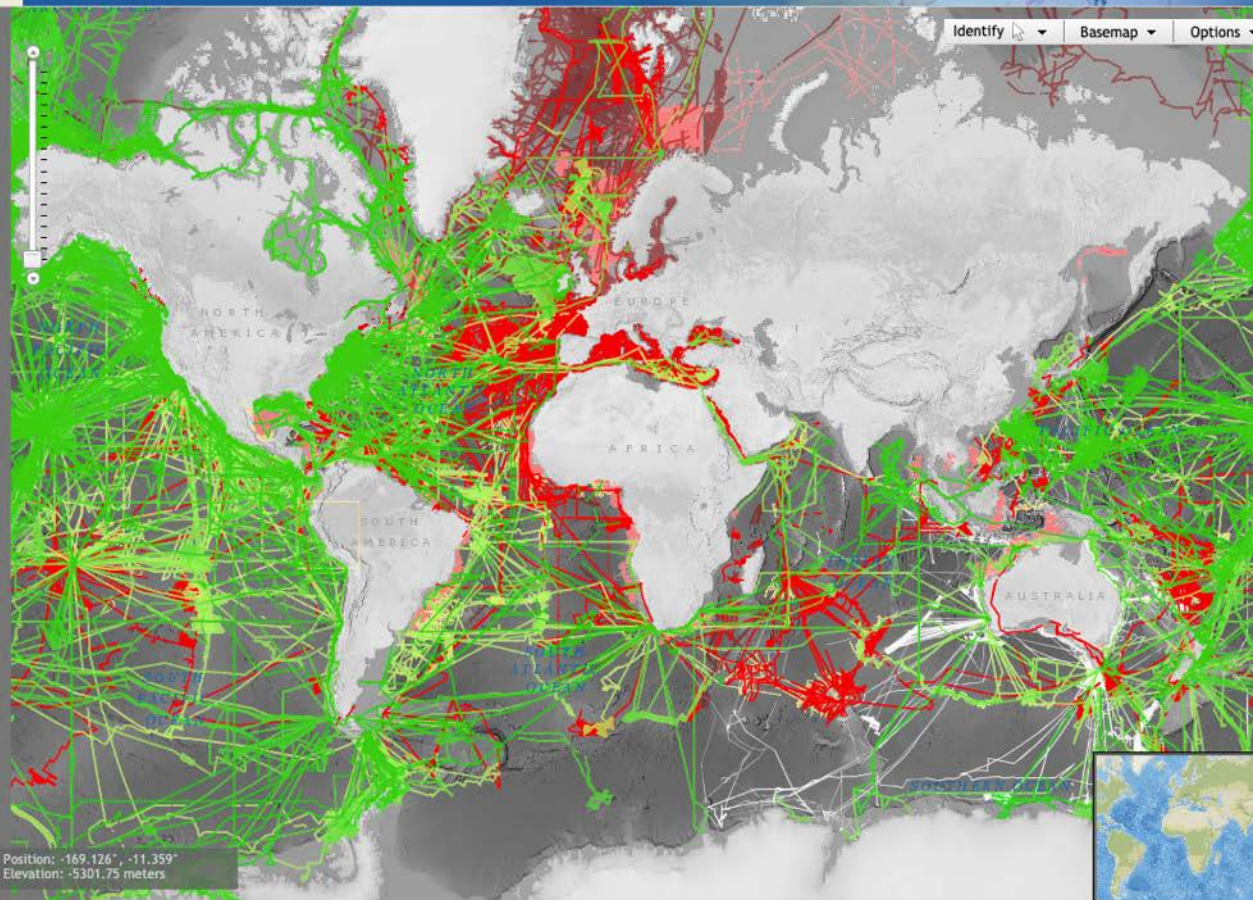
IHO

International
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Organization

Data Centre for Digital Bathymetry Viewer

Layers

- ▶ IHO DCDB/NOAA NCEI ?
- ▶ EMODnet
- ▶ Australia
- ▶ Canada
- ▶ France
- ▶ Japan
- ▶ Netherlands
- ▶ Known Non-Public Data ?
- ▶ Bathymetric Coverage Maps



More Information

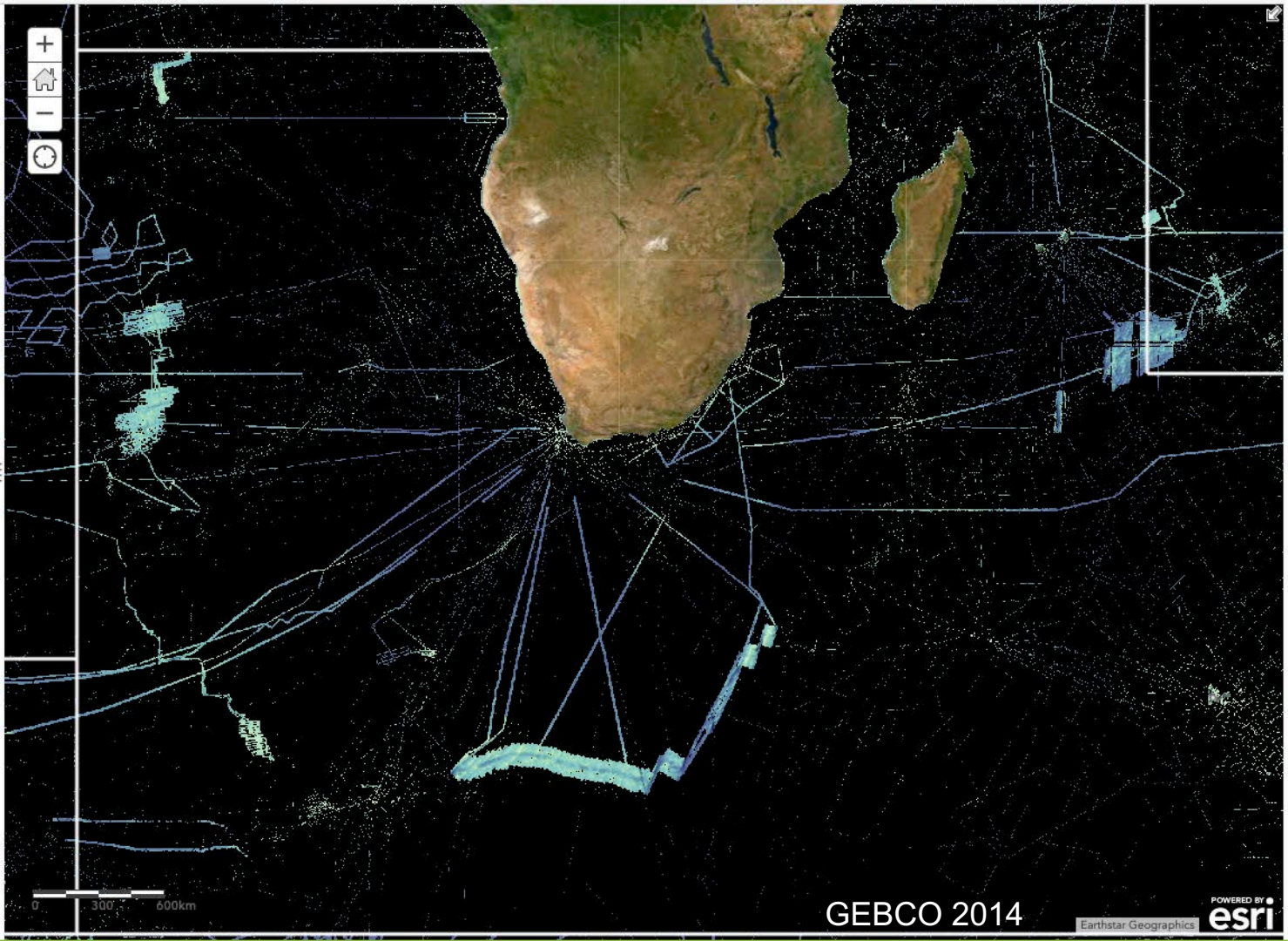
Help

Mercator
Arctic
Antarctic



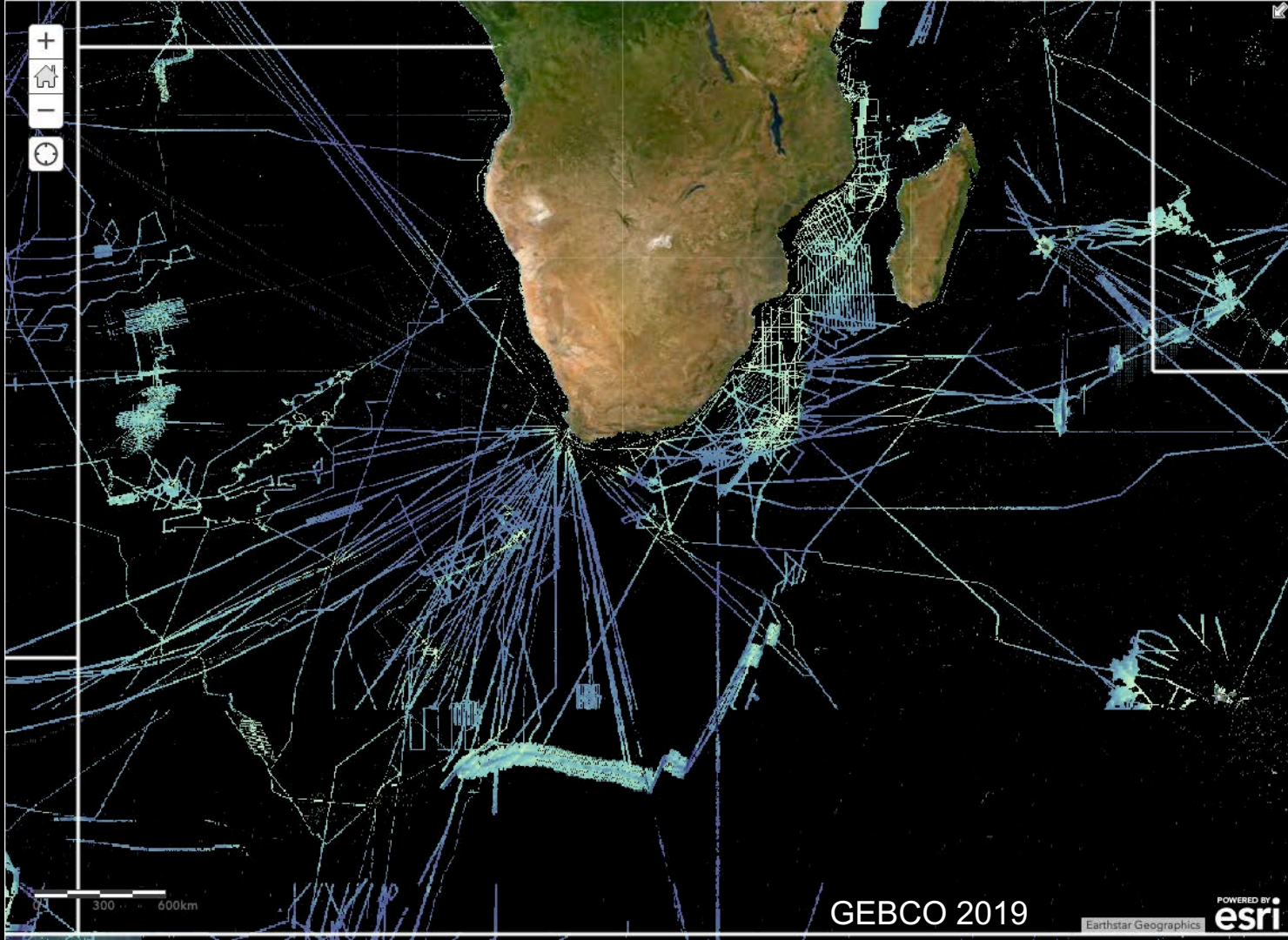
Status of Mapping: GEBCO 2020





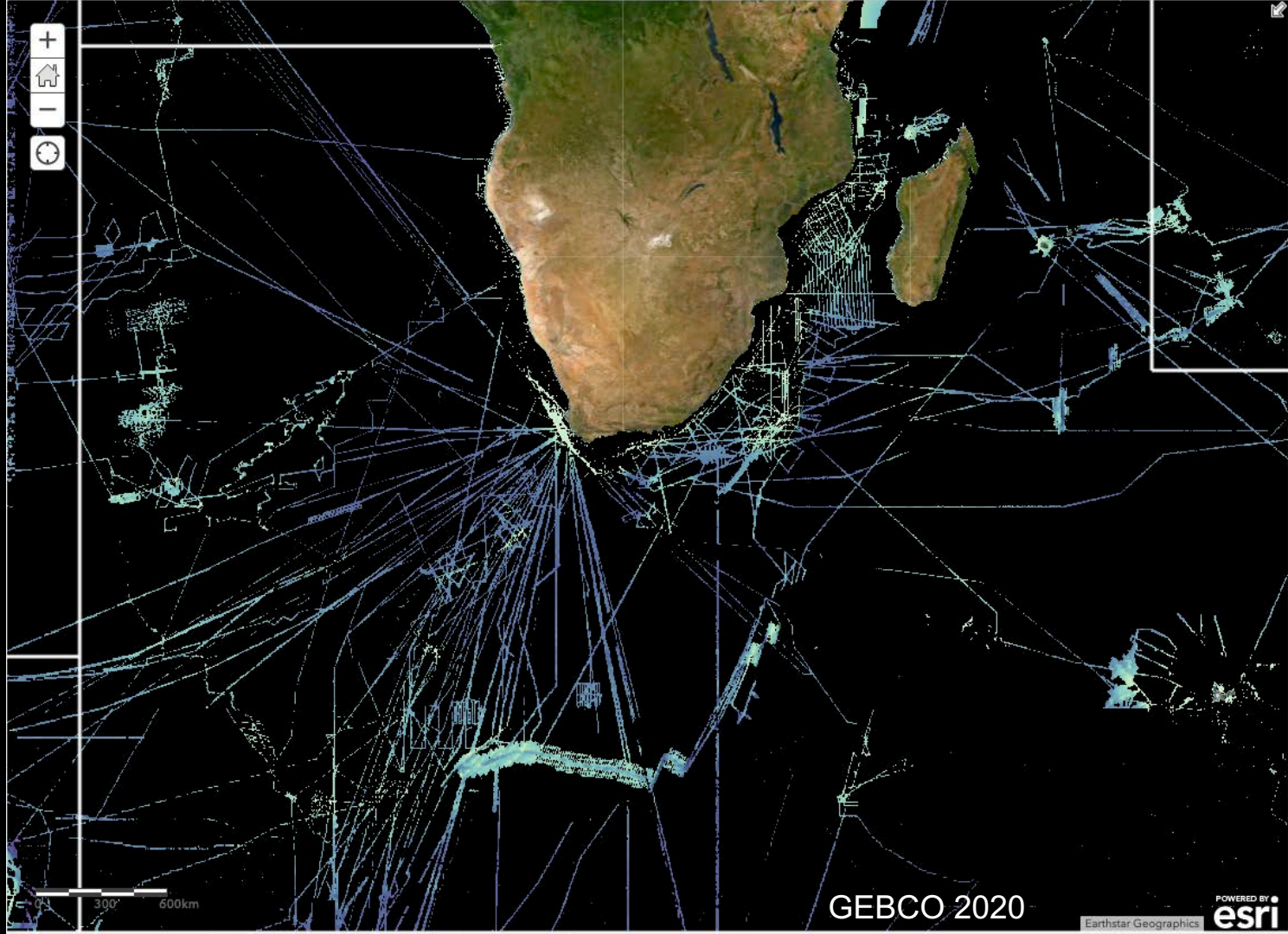
GEBCO 2014

POWERED BY
Earthstar Geographics **esri**



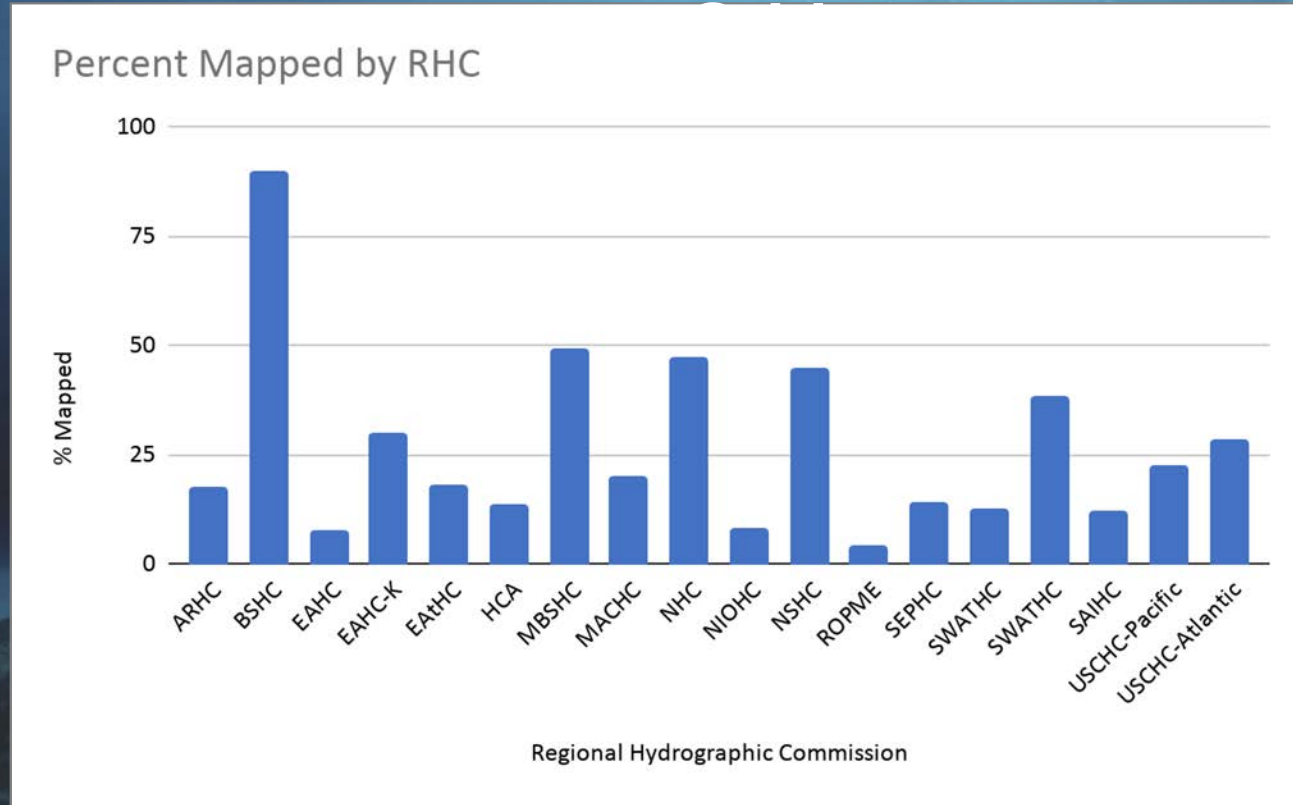
GEBCO 2019

POWERED BY
Earthstar Geographics **esri**



GEBCO 2020

Percent Mapped by RHC - Based on the GEBCO 2020

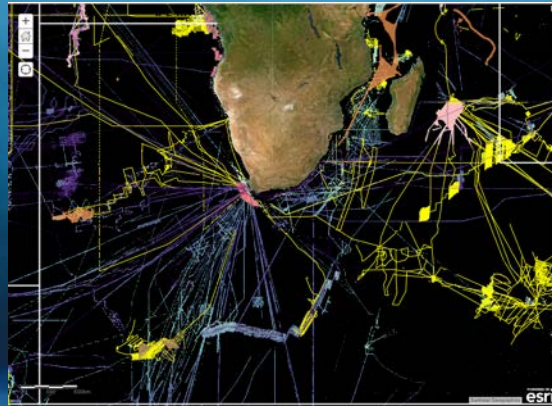


How much of the SAIHC region has been mapped?



**GEBCO 2020
Data Coverage**

+

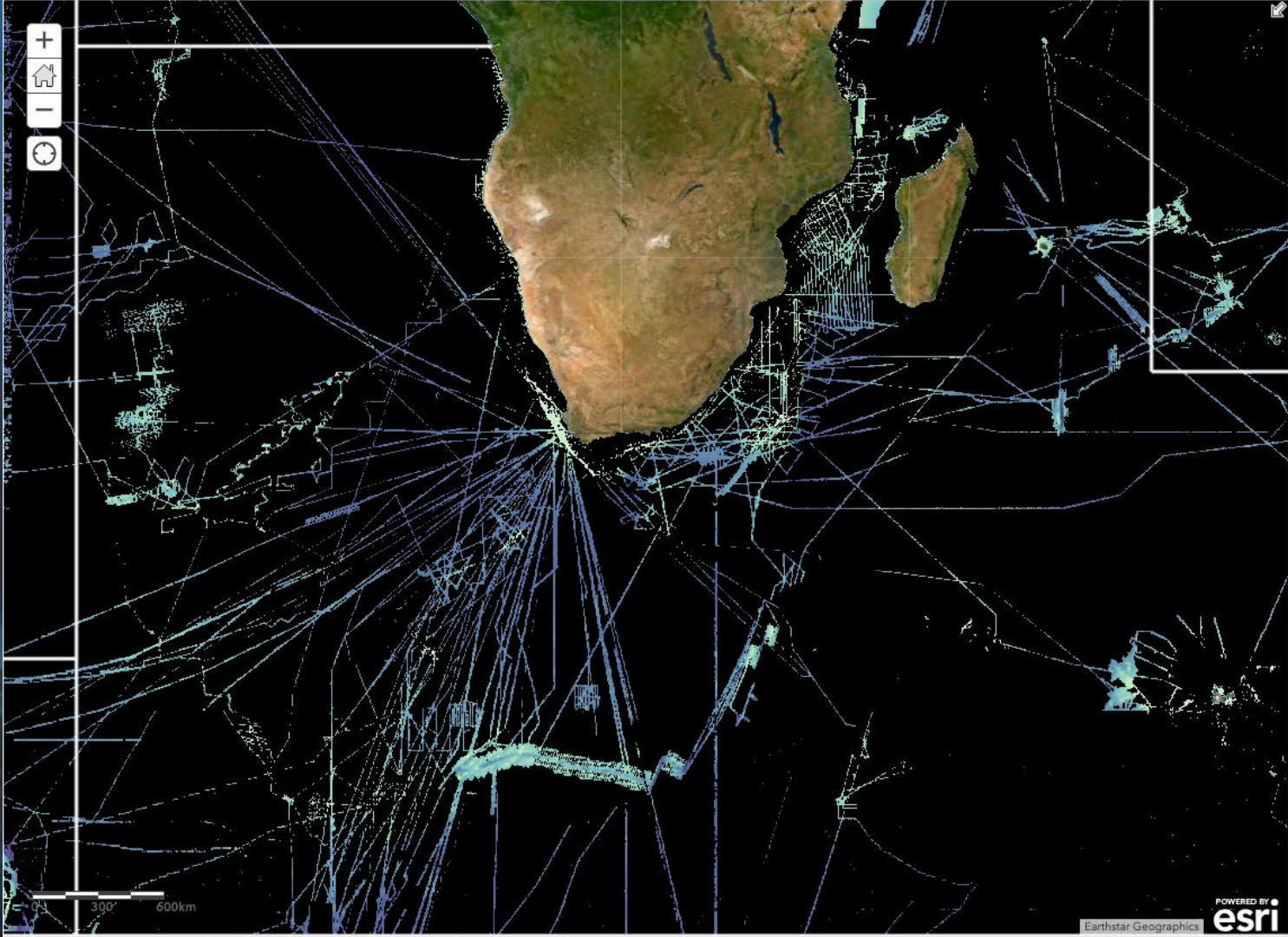


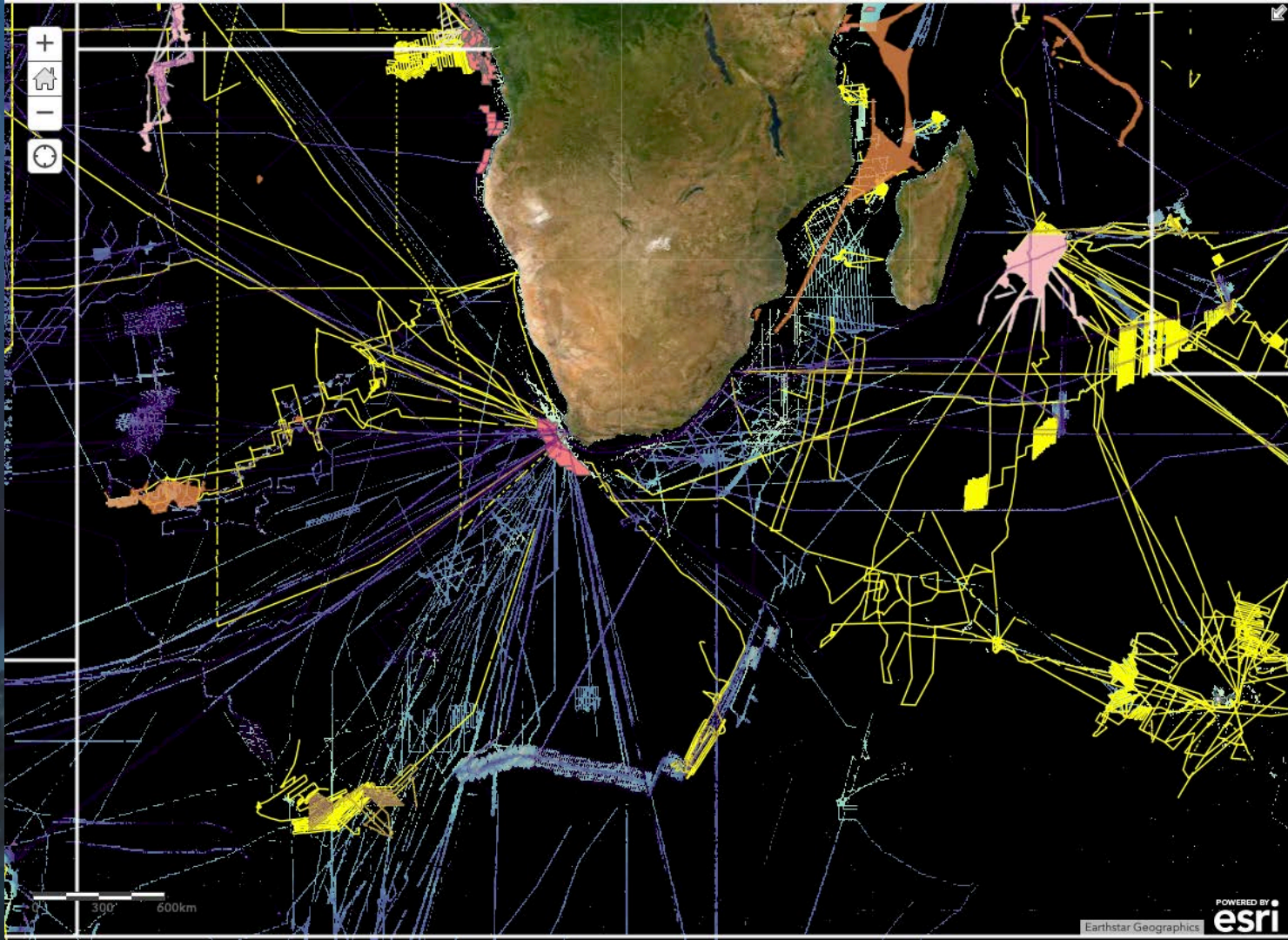
**Known existing data
not yet shared and/or
not yet integrated**

+

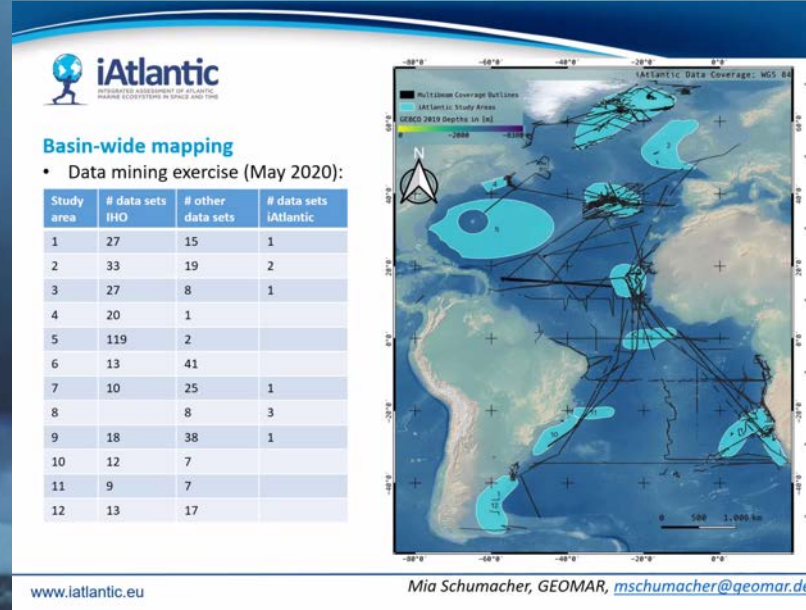
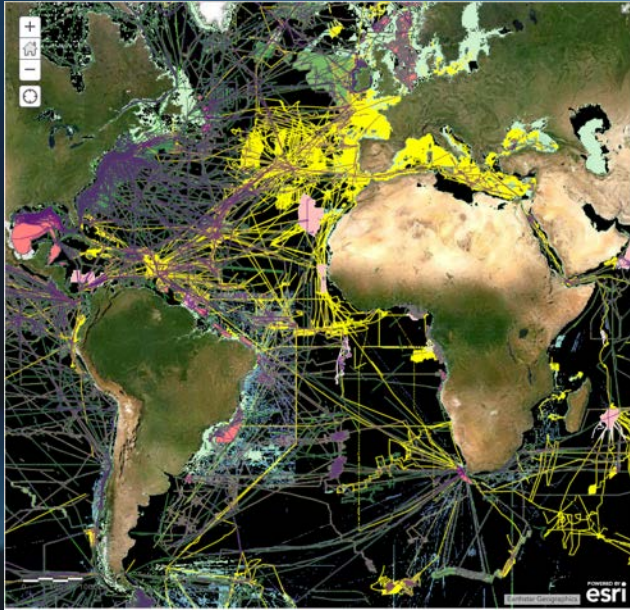
?

**Unknown
existing data
not yet shared**





How can we work together to meet our common goals?



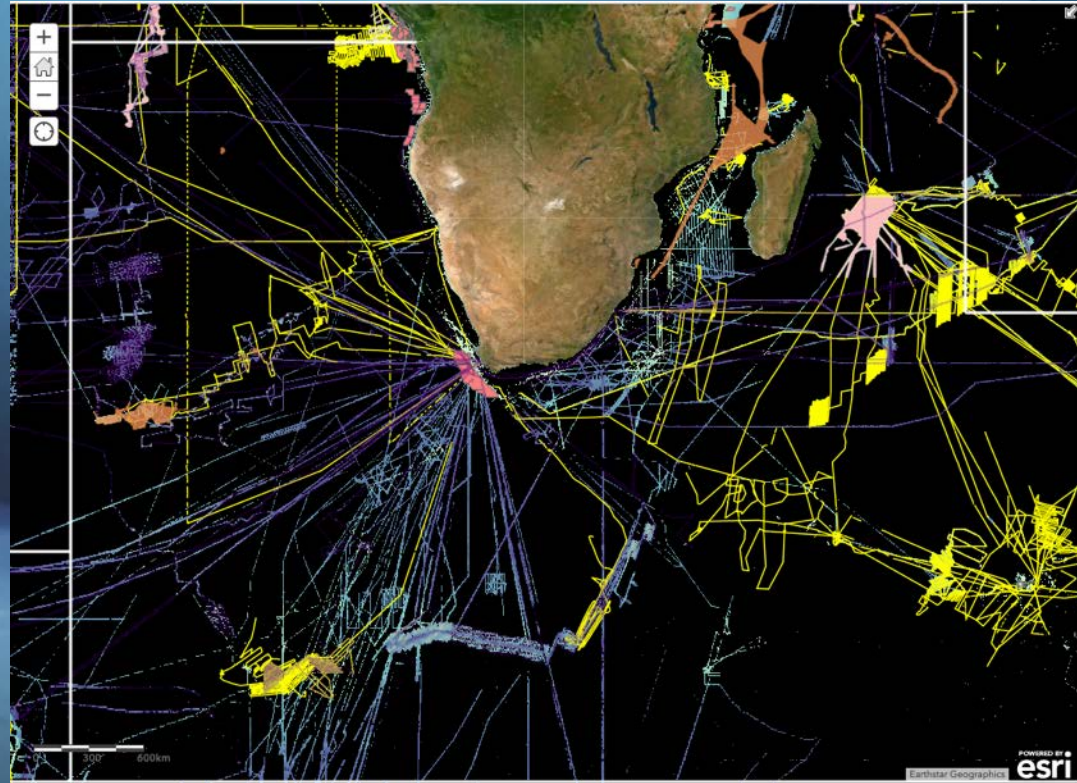
SAIHC Region: Summary of known existing data

Publicly Available Data

- Multibeam data at IHO DCDB
- Public data in distributed repositories
- Actively being integrated into Seabed 2030 regional data products

Non-public Data

- Footprints of existing data that could be shared?
- Strategy for promoting data sharing?



Contributing Data



What to Contribute?

- ENC data
- Multibeam data
- Single beam data
- CSB data
- Gridded products
- Polygons of data coverage
- Metadata





How to

Please use the individual source data for any problems if you have any (gdacc@seabed2030.org)

GE

GEBCO
the wor

Contributing data for public access

GEBCO encourages the sharing of source bathymetric data within the international community for the benefit of all.

The [International Hydrographic Organization Data Center for Digital Bathymetry](#) (IHO DCDB), manages a worldwide publicly-accessible digital data bank of oceanic soundings on behalf of the Member Countries of the IHO. Archiving data with the IHO DCDB ensures their long term preservation and public availability.

Contributing data for updating the GEBCO grid only

If source data cannot be made publicly available, data can still be contributed directly to GEBCO through the Seabed 2030 Project (as described in the form above).

The project prefers processed data in the form of multibeam grids, single beam tracks or pre-generated grids (i.e. a data set in gridded form based on a number of source data sets).

If submitting a pre-generated grid, please provide accompanying information describing source data types included in the grid and if areas are based on interpolation (e.g. as a [Type Identifier Grid](#)).

This information will better help us to 'map the gaps'.

Useful contacts

- Global Center gdacc@seabed2030.org
- IHO DCDB bathydata@iho.int
- Seabed 2030 [Regional Centers](#)



bathymetry initiative

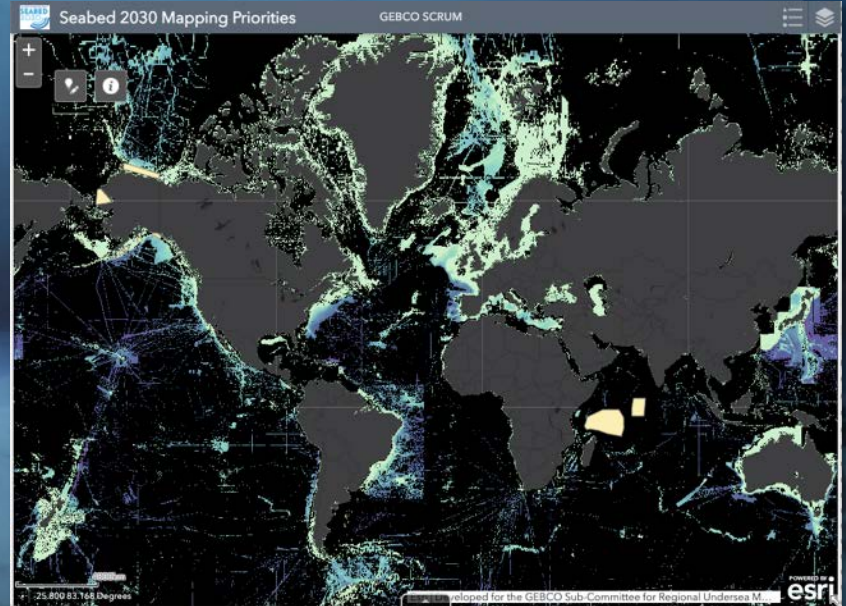


Coordinating New Data Acquisition

Provision of Coverage Polygons



Identifying Mapping Priorities



Capacity Development



Nippon Foundation - GEBCO Training Program

Postgraduate Certificate in Ocean Bathymetry



Training a new generation of scientists and hydrographers in ocean bathymetry

Funded by:

The Nippon Foundation of Japan

Taught at:

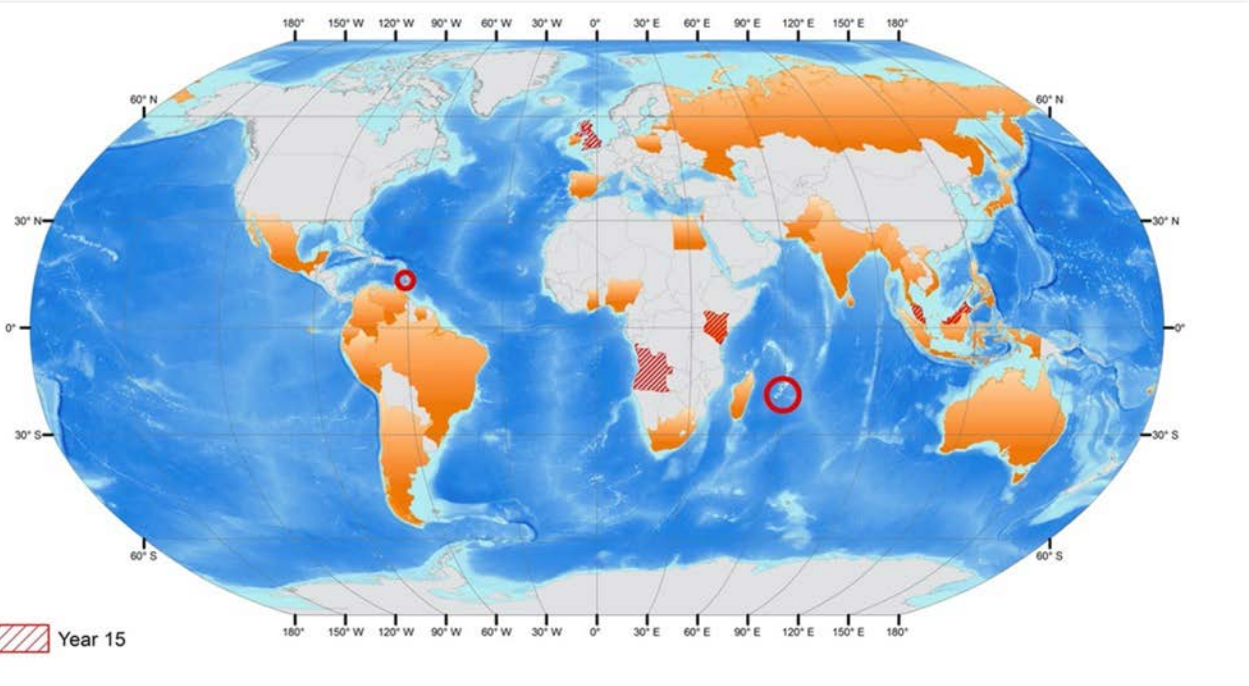
The Center for Coastal and Ocean Mapping / Joint Hydrographic Center; University of New Hampshire, USA



Nippon Foundation - GEBCO Training Program



96 Scholars from 43 coastal states over last 16 years!



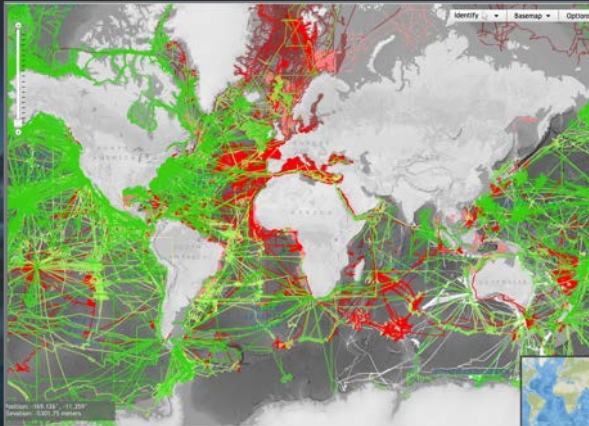
Includes 16 Alumni from:

- Mauritius
- Republic of South Africa
- United Kingdom
- Angola
- India
- Kenya
- Madagascar
- Portugal



How can we further develop capacity?

- Data sharing
- Shared/integrated workflows
- Shared software
- Coordinated data processing
- Common standards
- Identify stakeholder needs



gebco

GEBCO
General Bathymetric Chart of the Oceans
<http://gebco.net> gdacc@seabed2030.org

📁 Repositories 1 📦 Packages 👤 People 📁 Projects

🔍 Find a repository... Type: All ▾

GEBCO-15-arcsec-grid

Code and commands to help in use of the GEBCO 15 arcsec NetCDF file

👤 1 ⭐ 1 🕒 0 📄 0 Updated on Jun 28, 2019



Completing the Map

- Collaboration and Coordination
- Technical Innovation
 - Data Acquisition
 - Data Synthesis & Integration
- Sharing of Knowledge & Data
- Capacity Development



Thank you!

atlantic-Indian@seabed2030.org

www.seabed2030.org

