THE NIPPON FOUNDATION-GEBCO

SEABED 2030

A brief overview of the Seabed 2030 Project, IHO DCDB & CSB Activities

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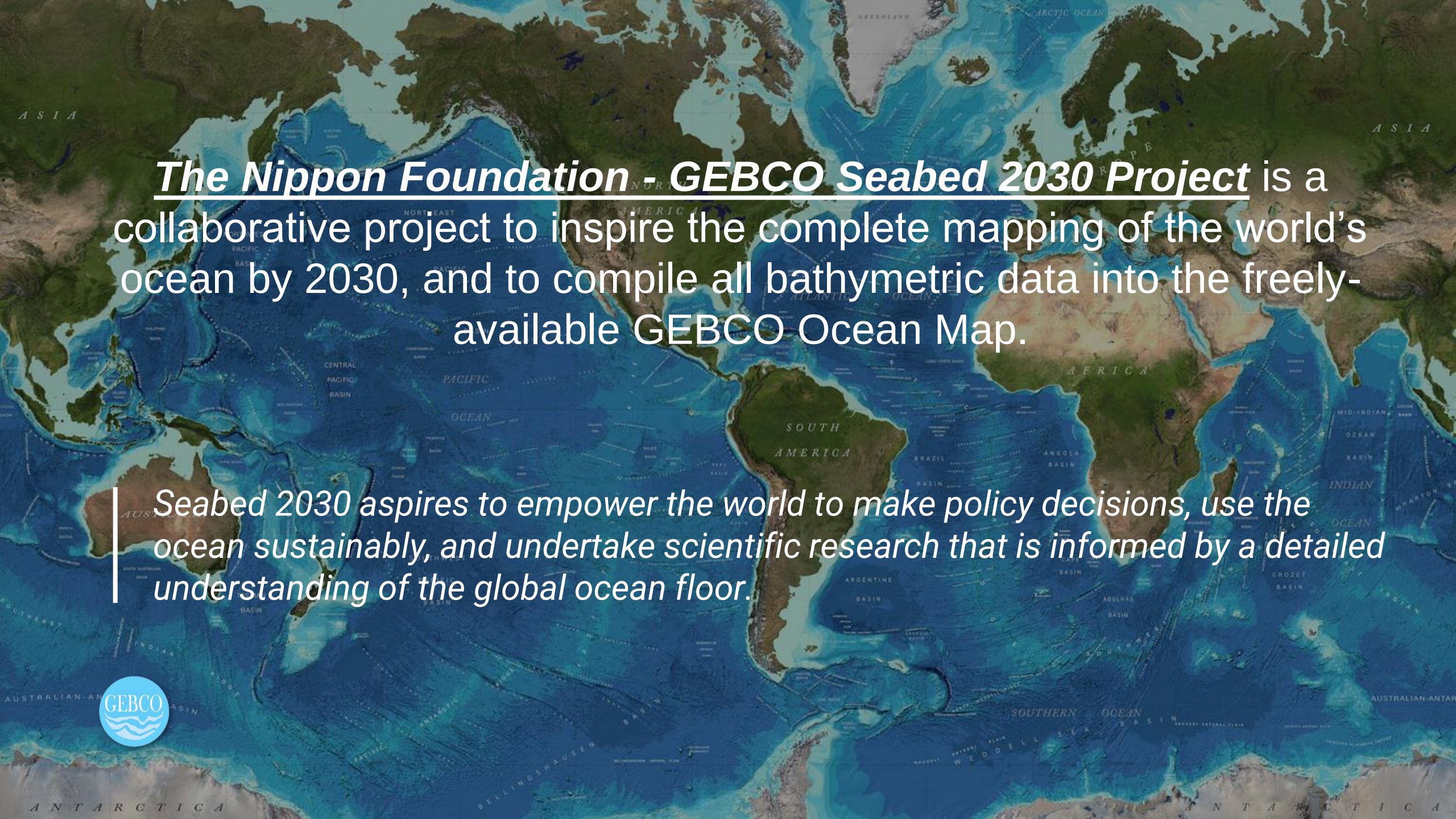
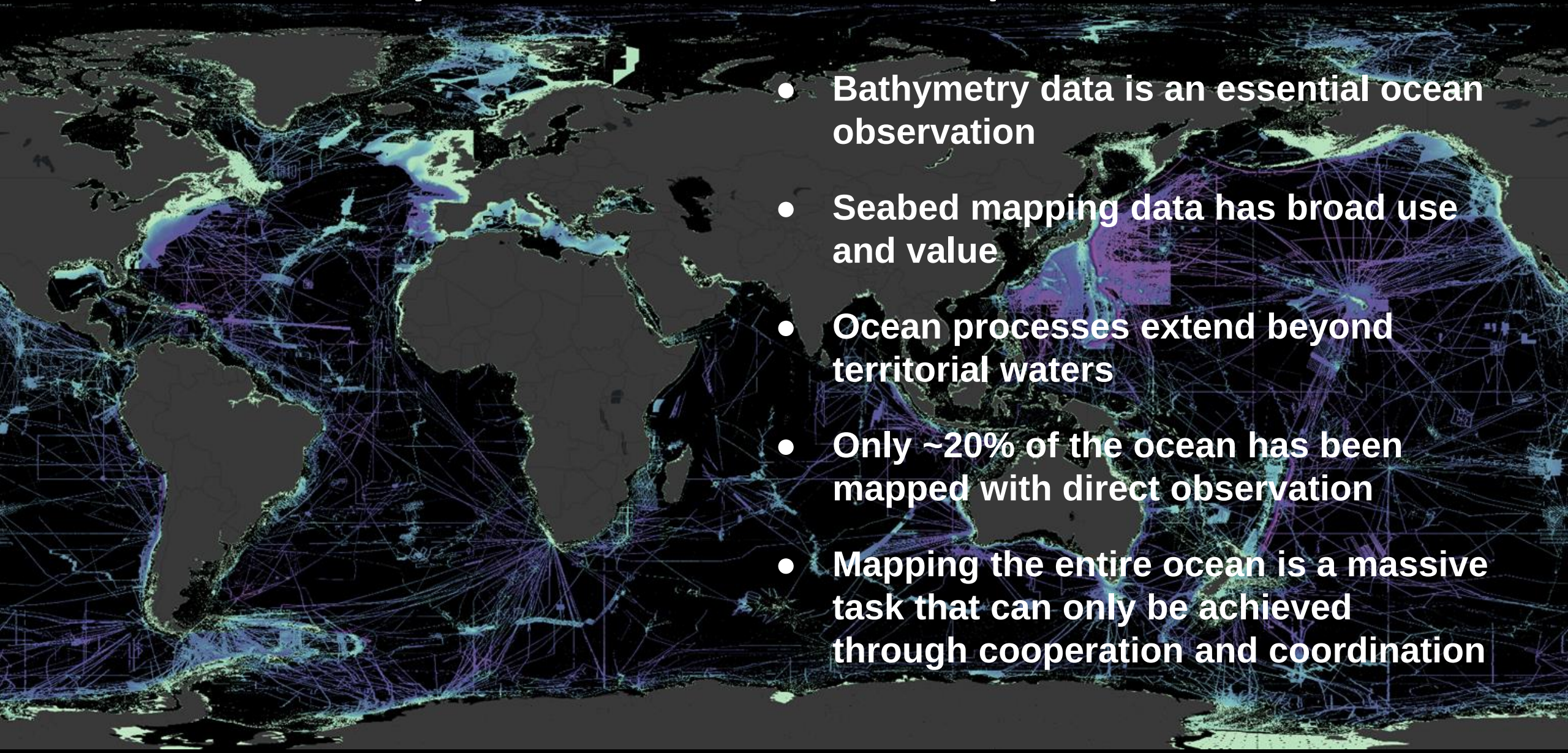


The Nippon Foundation - GEBCO Seabed 2030 Project is a collaborative project to inspire the complete mapping of the world's ocean by 2030, and to compile all bathymetric data into the freely-available GEBCO Ocean Map.

> *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?

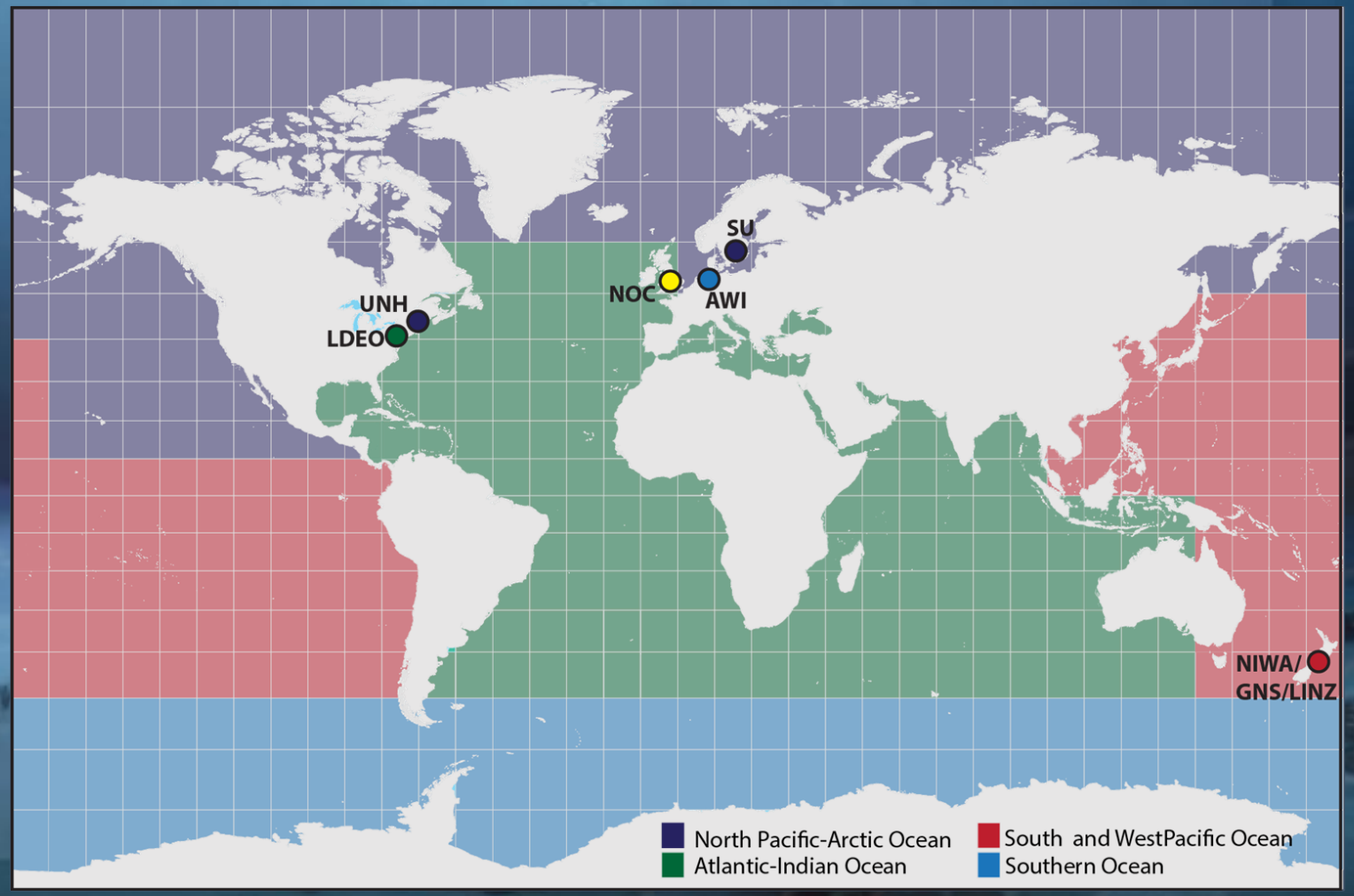


- Bathymetry data is an essential ocean observation
- Seabed mapping data has broad use and value
- Ocean processes extend beyond territorial waters
- Only ~20% of the ocean has been mapped with direct observation
- Mapping the entire ocean is a massive task that can only be achieved through cooperation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

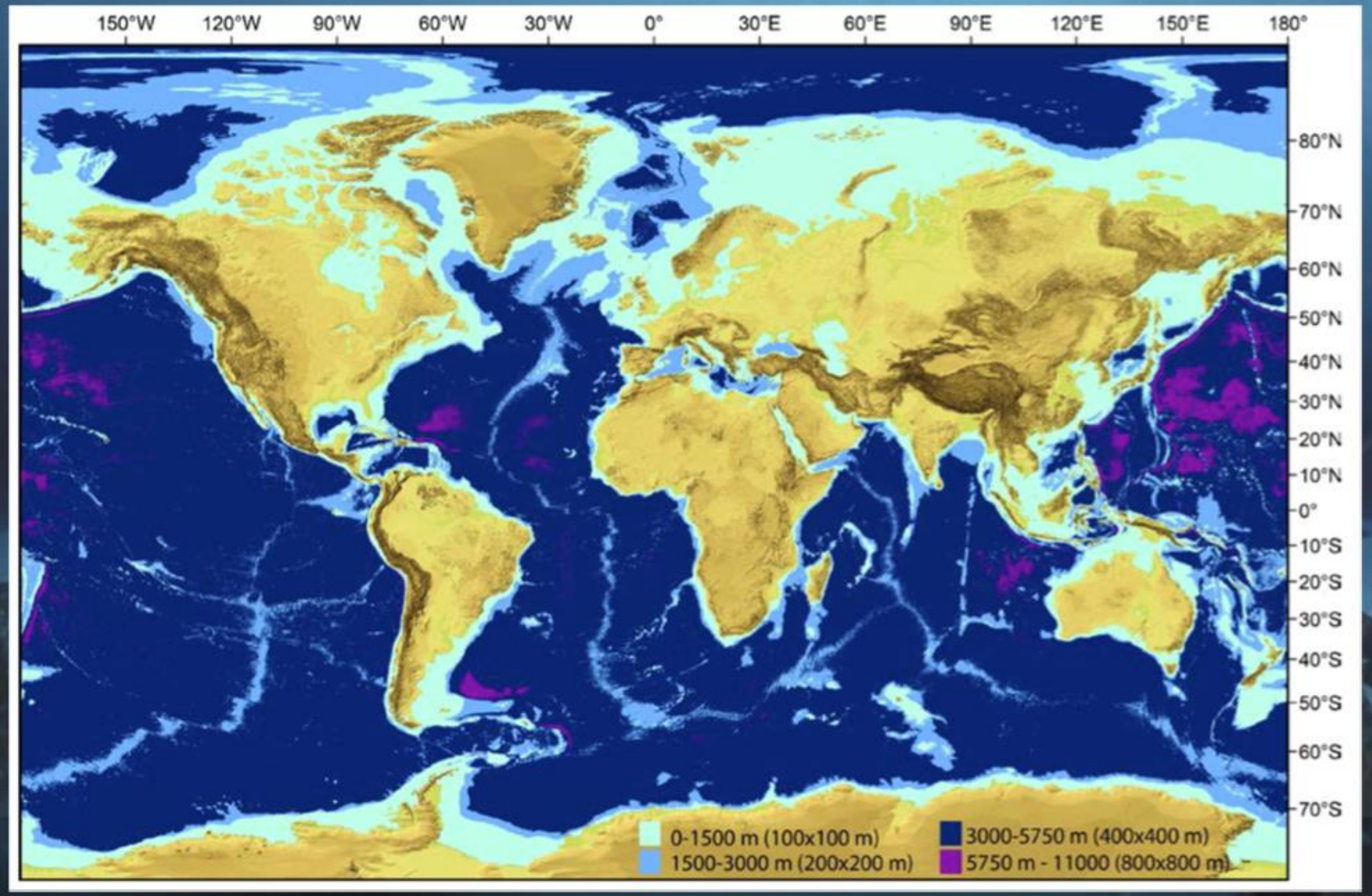
GEBCO 2021: Ocean areas covered by black are unmapped

Seabed 2030: Regional Approach

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



What does 100% mapped mean?



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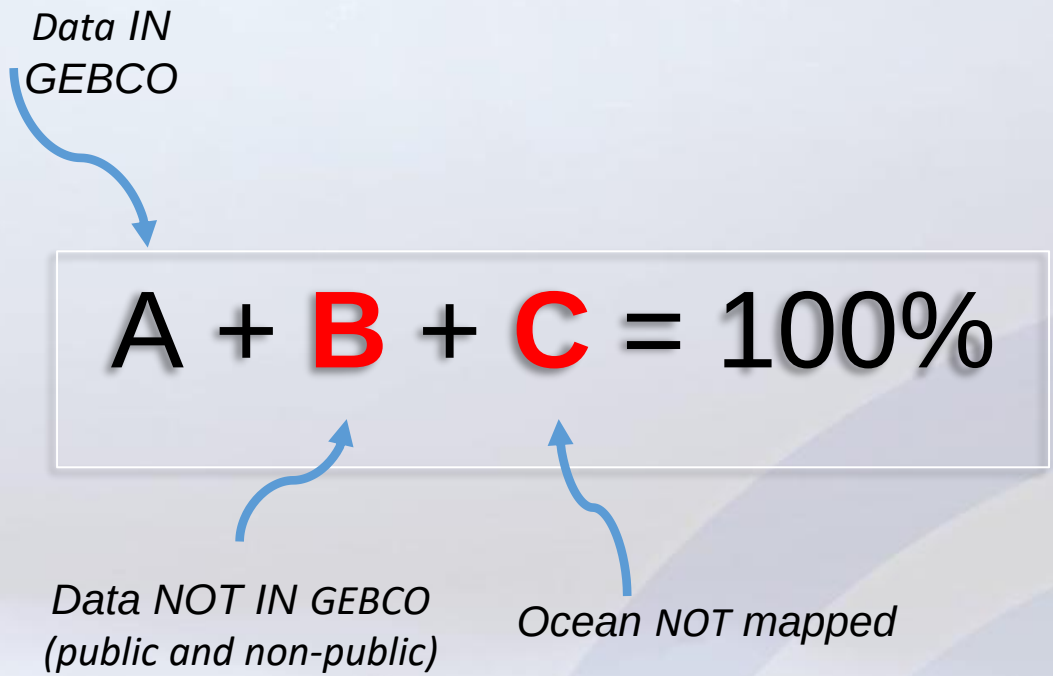
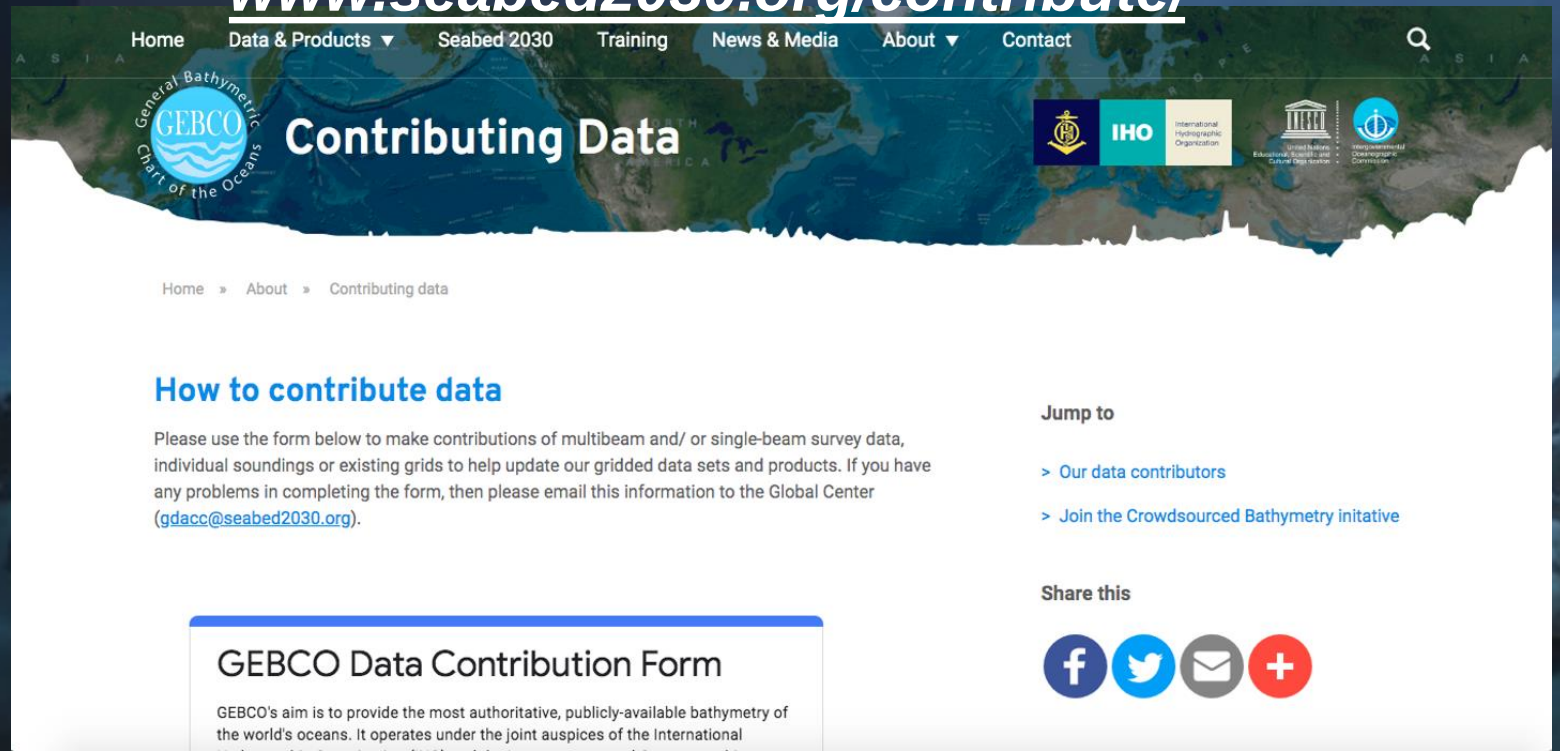
Mapping the Gaps

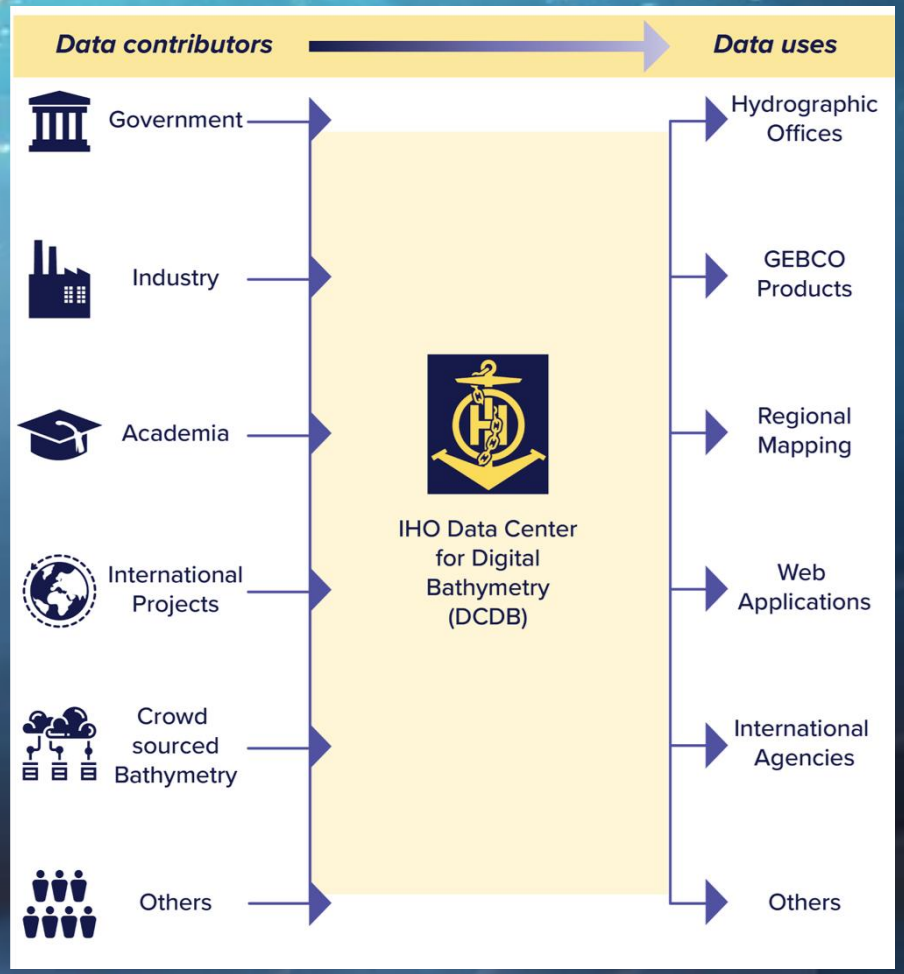
- **Ocean Frontier Mapping**
  - Use GEBCO grid to inform location of future mapping
  - Advocate for greater mapping activity
  - Identify funding for mapping expeditions
- **Crowdsourced Bathymetry**
  - Promote CSB around the world
  - Gain support of/data from contributors at all levels
- **Technology Innovation**
  - What can Seabed 2030 do to accelerate update of technology to accelerate rate of bathymetric mapping?



Contributing Data

- Bathymetry data in a variety of formats from a variety of devices
- IHO Data Center for Digital Bathymetry offers long-term archiving and access services
- More information available at:
  www.seabed2030.org/contribute/





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International Hydrographic Organization
Organisation Hydrographique Internationale

ngdc.noaa.gov/iho/

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

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.

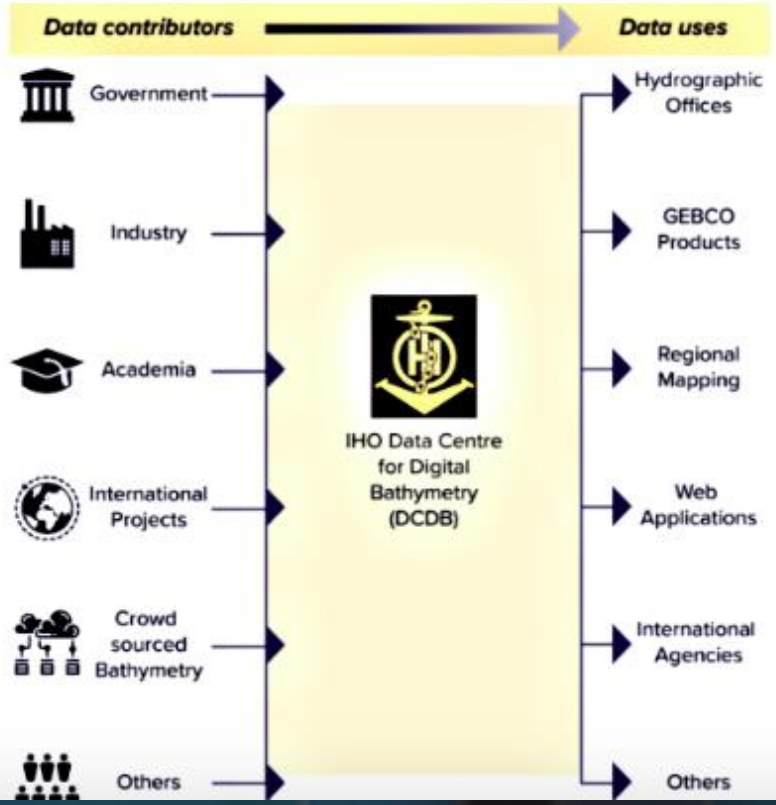
Bathymetric data and metadata can be submitted via File Transfer Protocol (FTP), email, or mail (hard drive) in the formats listed below.

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

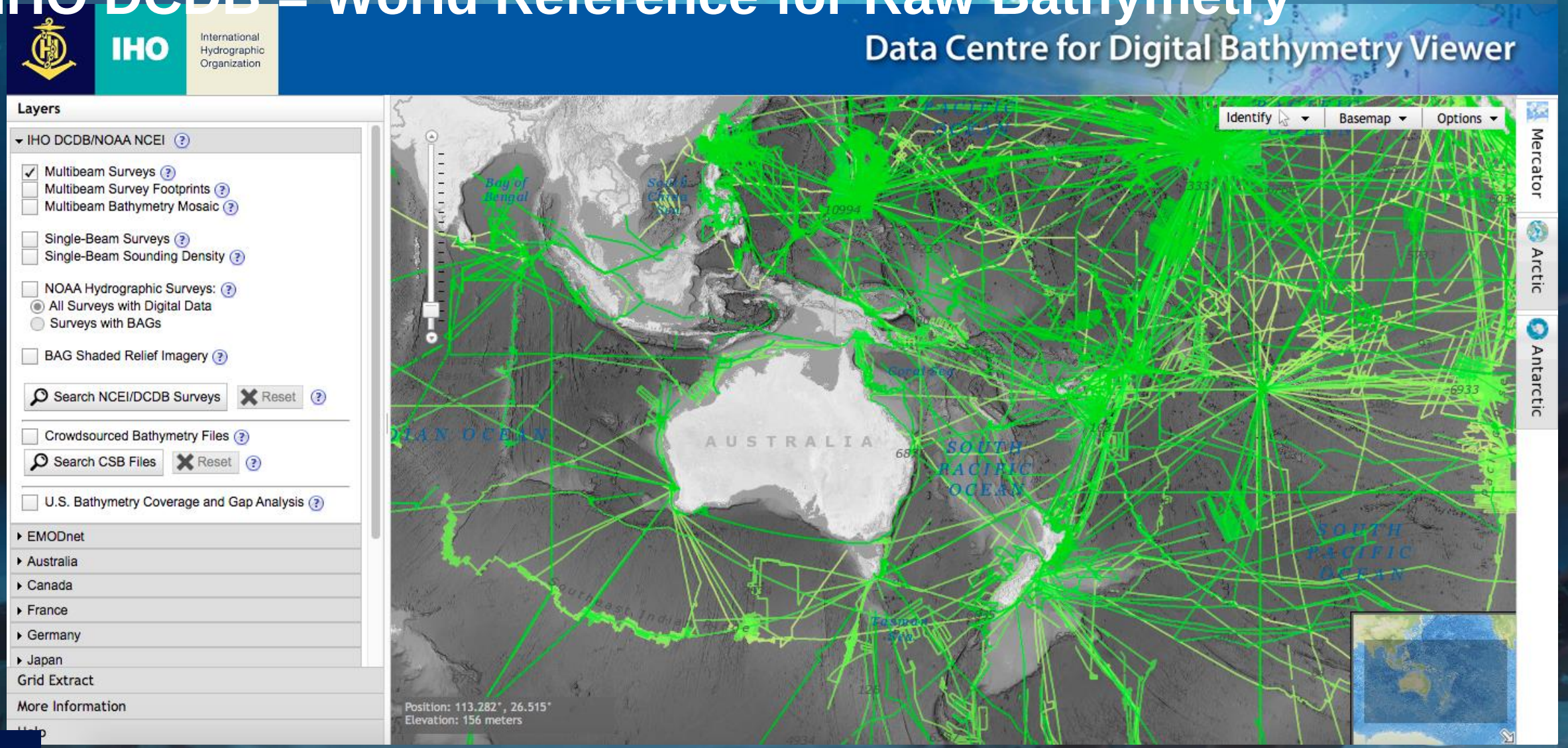
Other formats and products will be considered on a case-by-case basis.

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.

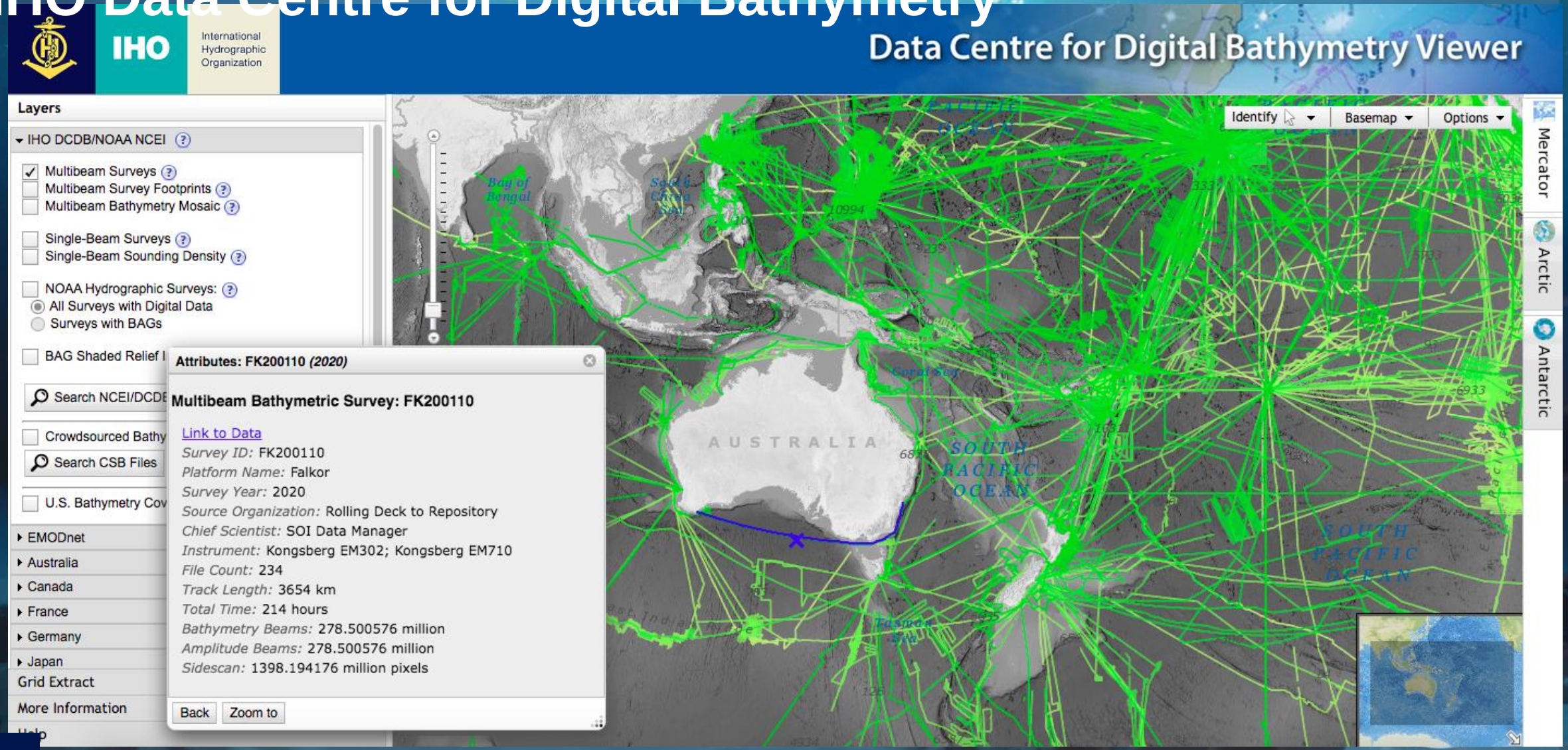


IHO DCDB = World Reference for Raw Bathymetry



ncei.noaa.gov/maps/iho_dcdb/

IHO Data Centre for Digital Bathymetry



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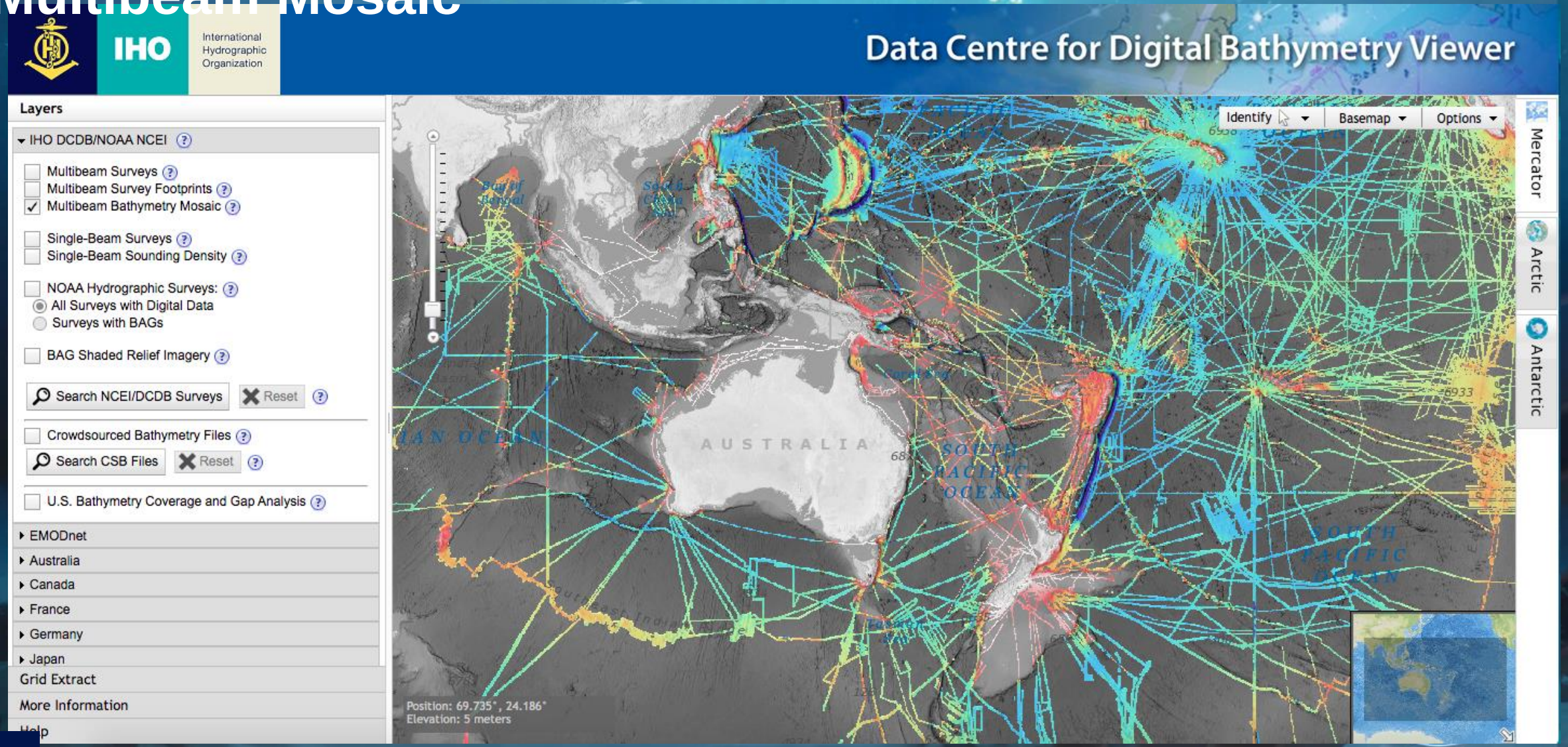
Multibeam Mosaic



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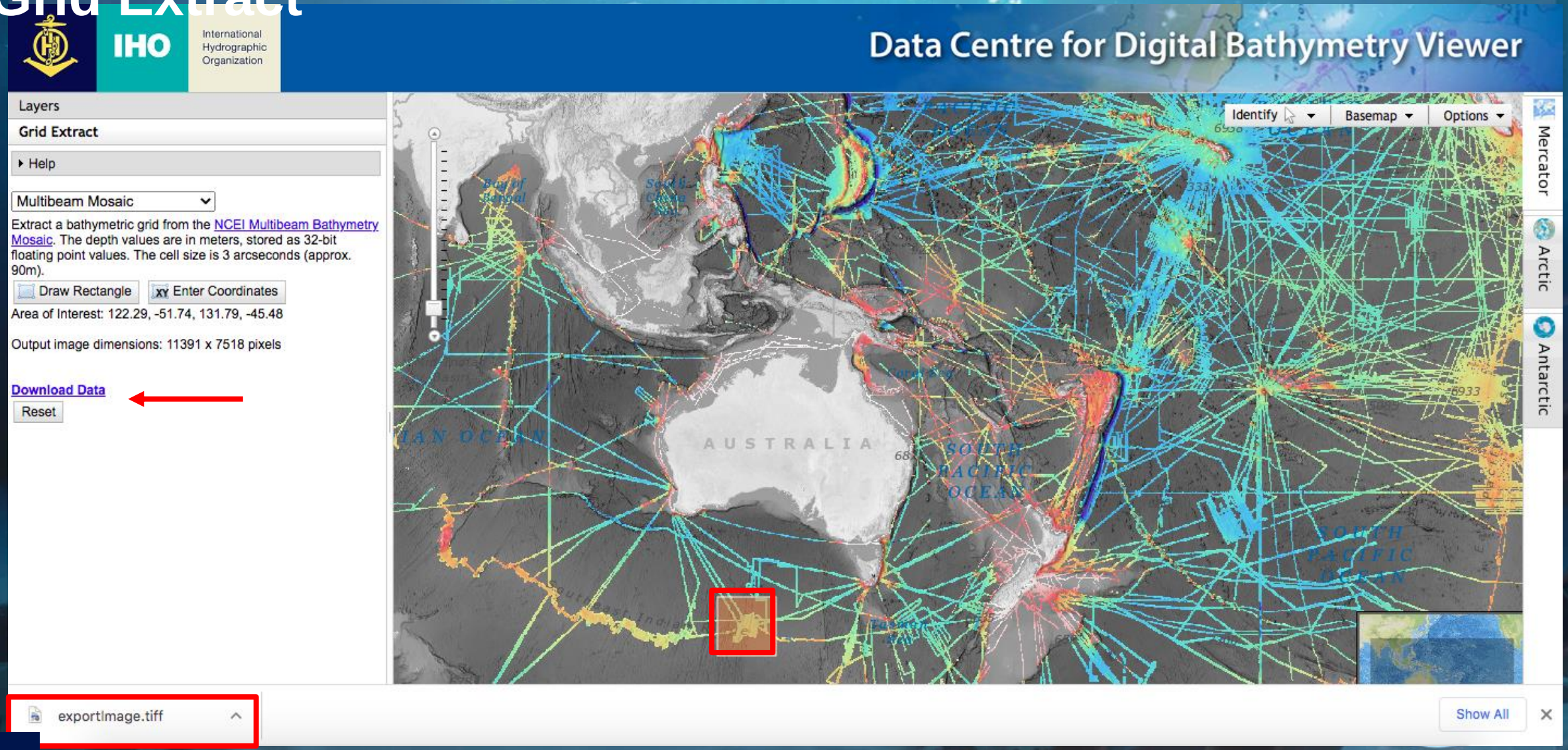
Grid Extract



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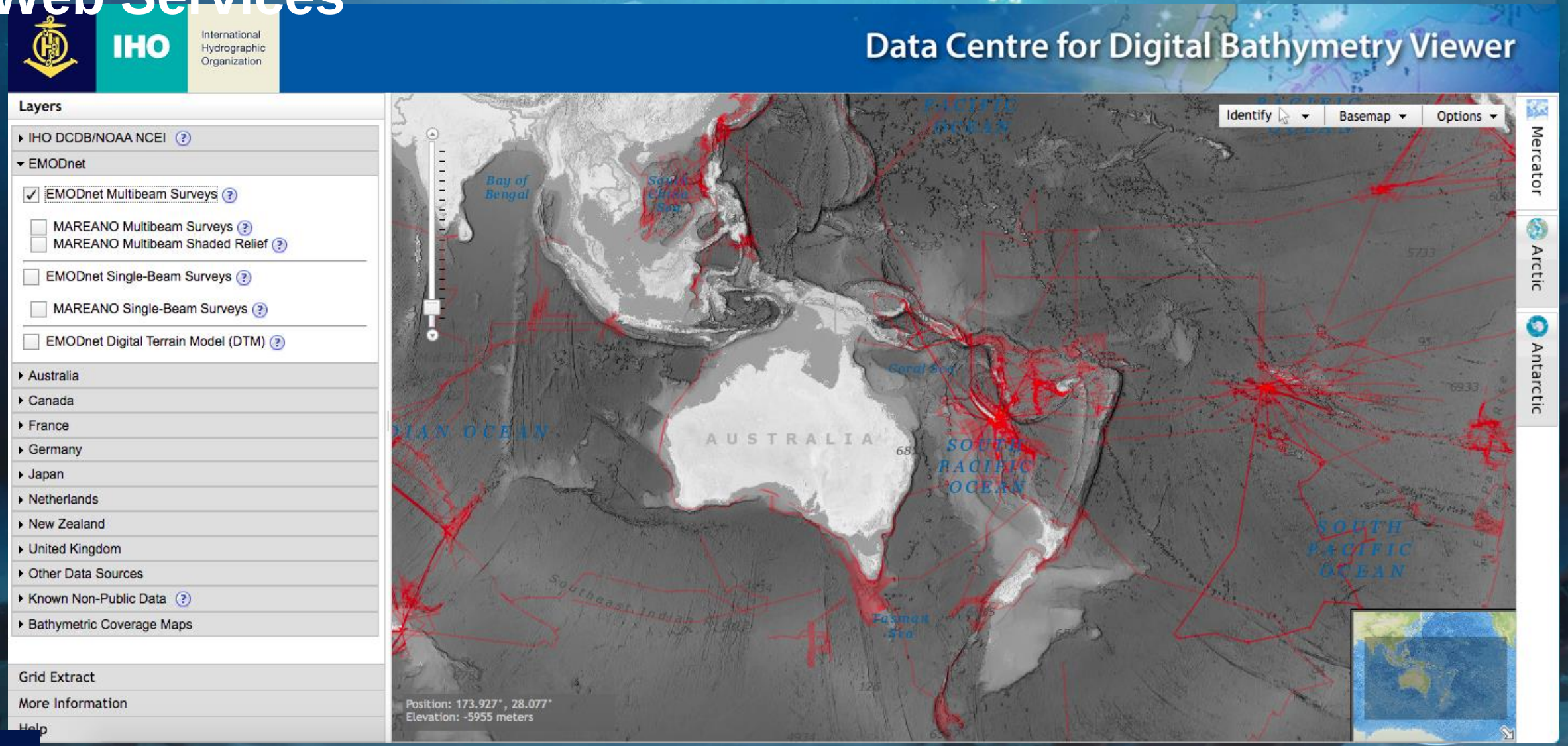
Web Services



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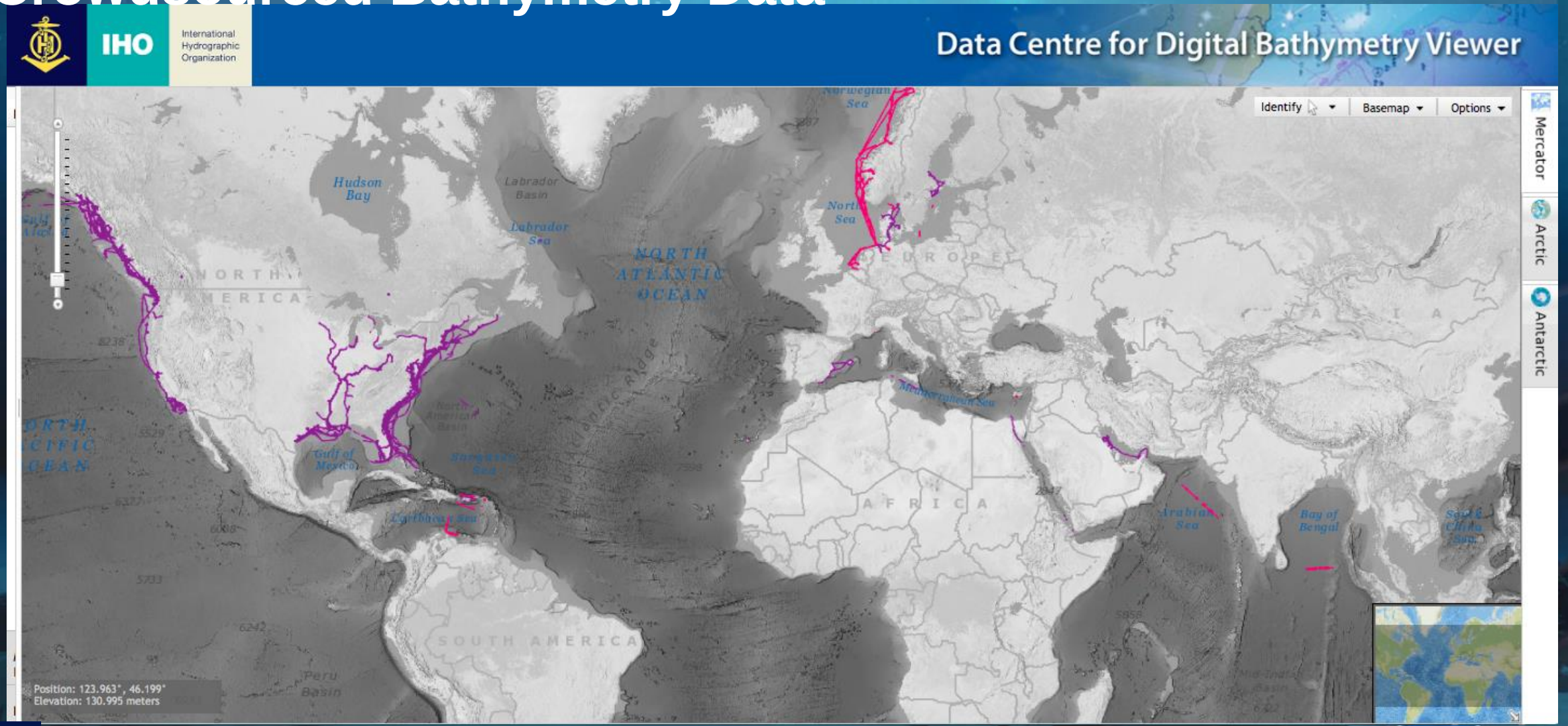
Crowdsourced Bathymetry Data



ncei.noaa.gov/maps/iho_dcdb/

Crowdsourced bathymetry (CSB) is the collection and sharing of depth measurements from vessels, using standard navigation instruments, while engaged in routine maritime operations.

The IHO Crowdsourced Bathymetry Initiative

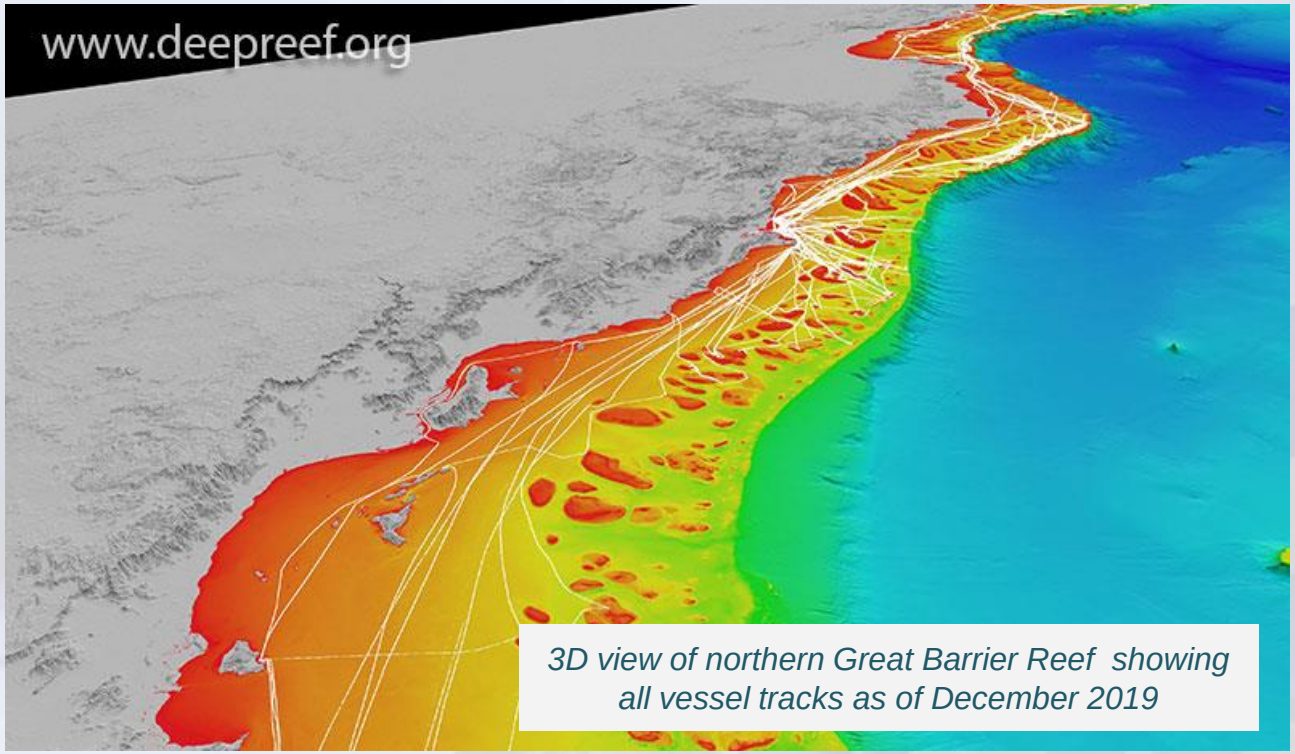
In 2014, the IHO initiated a collaborative project to encourage mariners to collect and contribute crowdsourced bathymetry.

A Working Group was 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.int/uploads/user/pubs/bathy/B_12_Ed2.0.3_2020.pdf

The Value of Crowdsourced Bathymetry Data

- Data with scientific, commercial & research value at no cost to the public sector
- Fill gaps where data is scarce (eg: Arctic, SIDS)
- Useful along shallow, complex coastlines
- Identify uncharted features
- Assist in verifying charted information
- Confirm whether charts are appropriate for the latest traffic patterns.

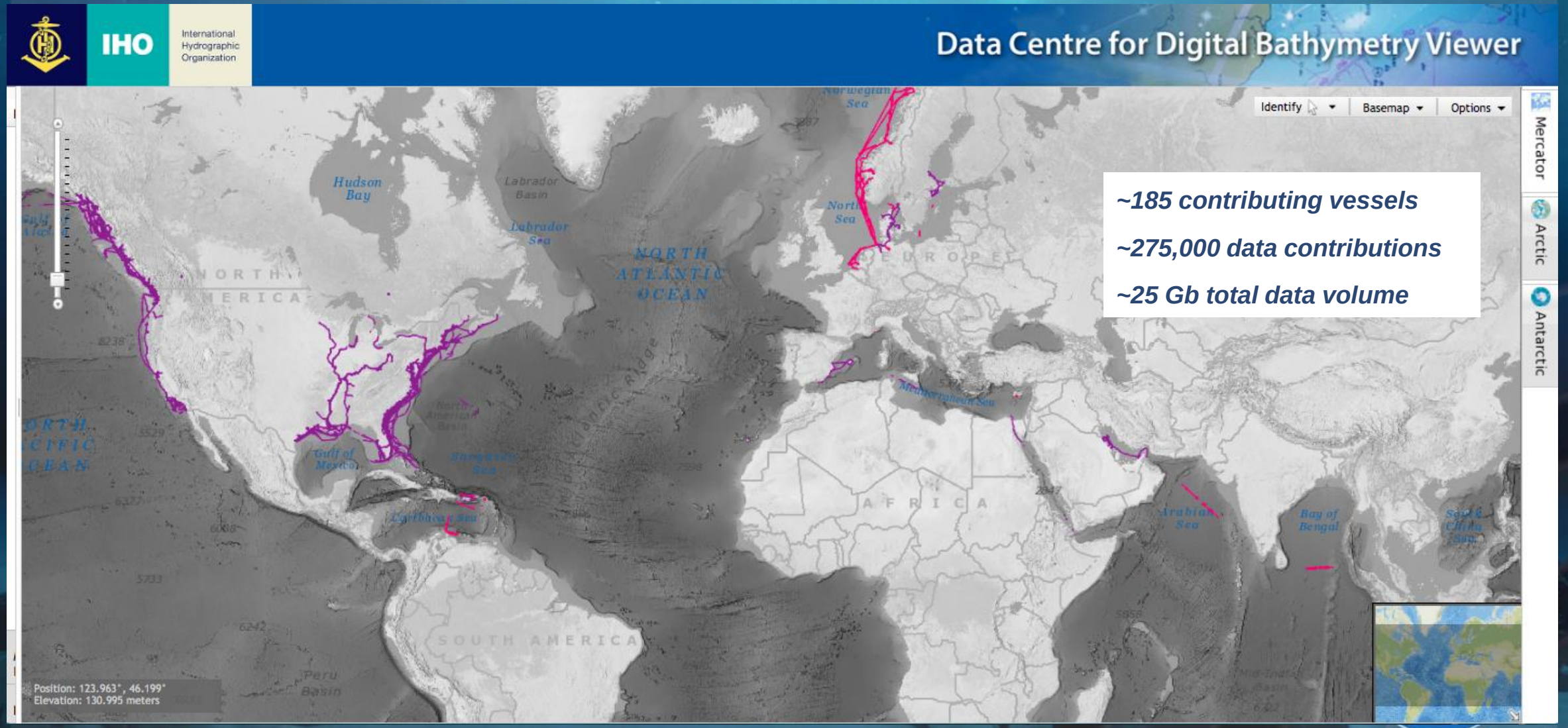


3D view of northern Great Barrier Reef showing all vessel tracks as of December 2019

...but only if vessels collect depth information while on passage!

Coastal States' Position

- All coastal States are requested to indicate their position on the ***provision of CSB data*** from ships within waters subject to their national jurisdiction into the public domain
- To date, 30 coastal states (green) have replied positively
- A geographic filter was implemented to reflect current coastal state positions.



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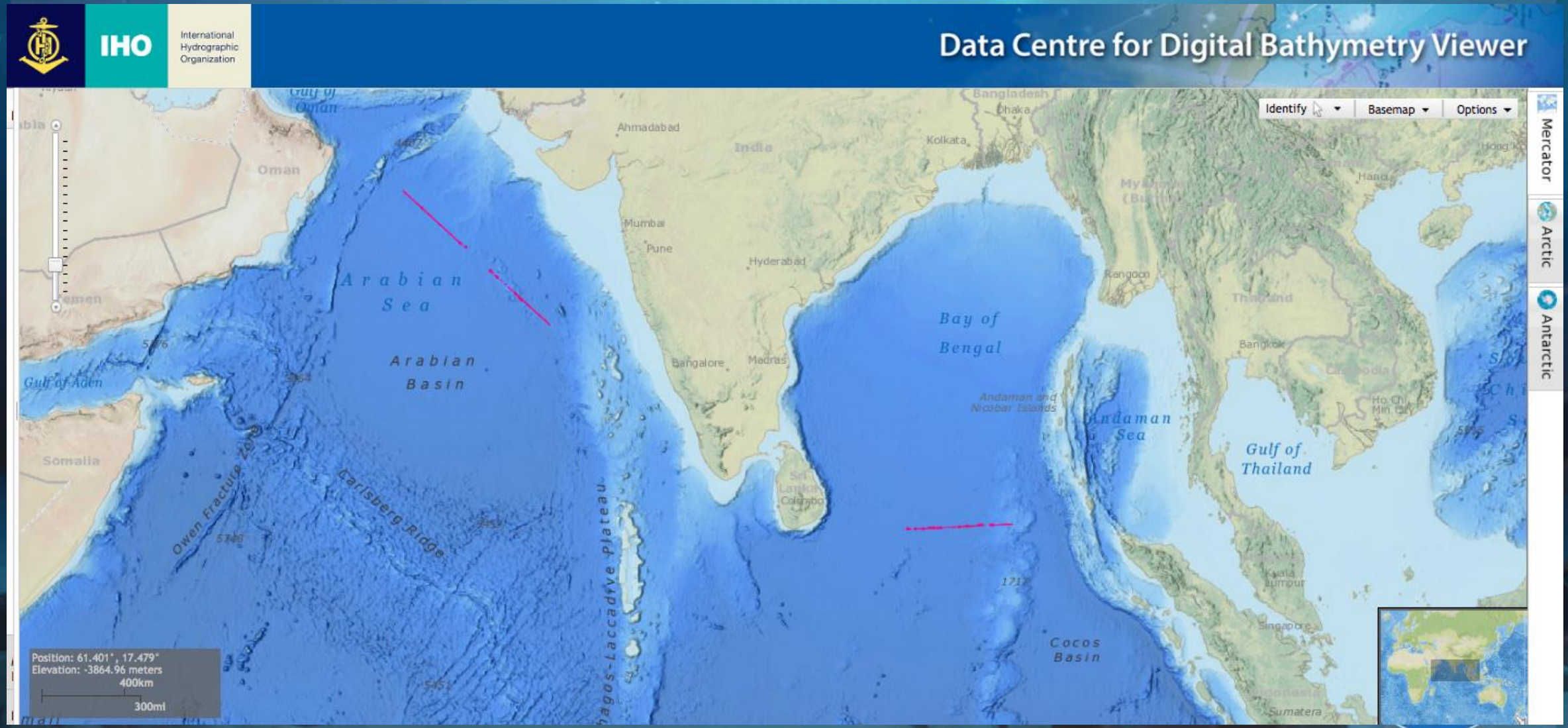

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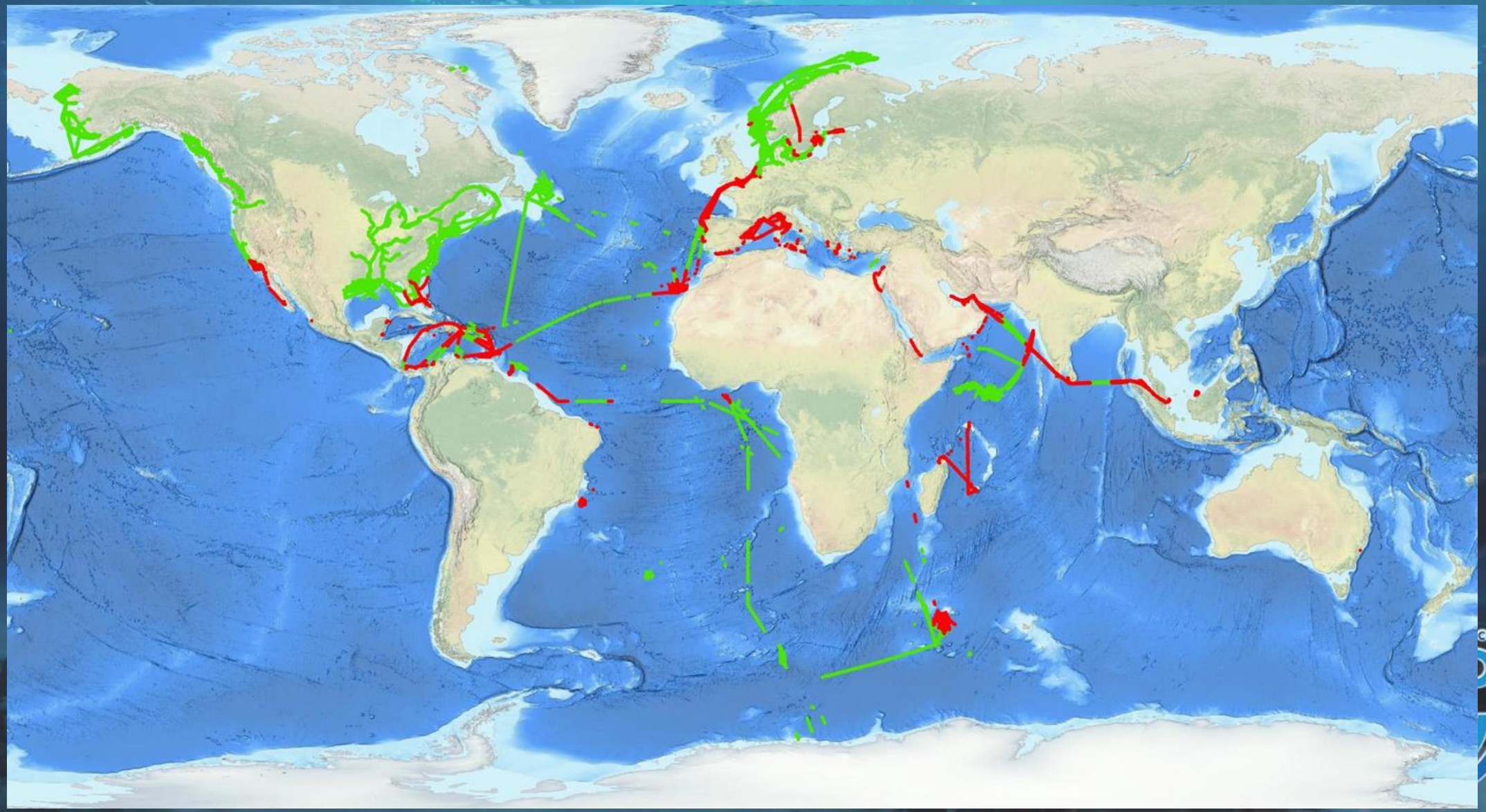

Seabed 2030-funded CSB Field Trials

Objective:

1. Facilitate field trials that will accelerate CSB activity
2. Collect data in data scarce areas
3. Grow excitement about the CSB initiative
4. Develop a repeatable regional CSB mapping project strategy

In return, a potential program must guarantee the provision of staff to:

1. Hand out data loggers to the community
2. Assist local mariners in set up
3. Act as a data assembly center
4. Provide a copy of these data to the IHO DCDB for inclusion into the GEBCO grid.

Support includes provision of data loggers (NMEA0183 and NMEA2000) and installation support (where needed).

Seabed 2030-funded CSB Field Trials

- **Greenland Institute of Natural Resources**
  - Phase 1: aim to engage approximately 50 vessels of various sizes- 30 data loggers deployed so far.
- **South African Navy Hydrographic Office (SANHO) and Institute of Maritime Technology (IMT)**
  - 100 data loggers deployed to SANHO/IMT.
  - Planning of trials: identification of stakeholders, establish relationships, feasibility studies, regular communication via various channels.
- **Palau Bureau of Marine Transportation**
  - 100 data loggers received (NMEA0183 and NMEA2000)
  - Coordinating with South & West Pacific Seabed 2030 Data Center
  - Will receive support from U.S. Navy for logger installation and setup in 2022.

Credit: Karl Zinglersen

"Sea Lab 1", IMT – trial deployment (Credit: Cdr Christoff Theunissen)

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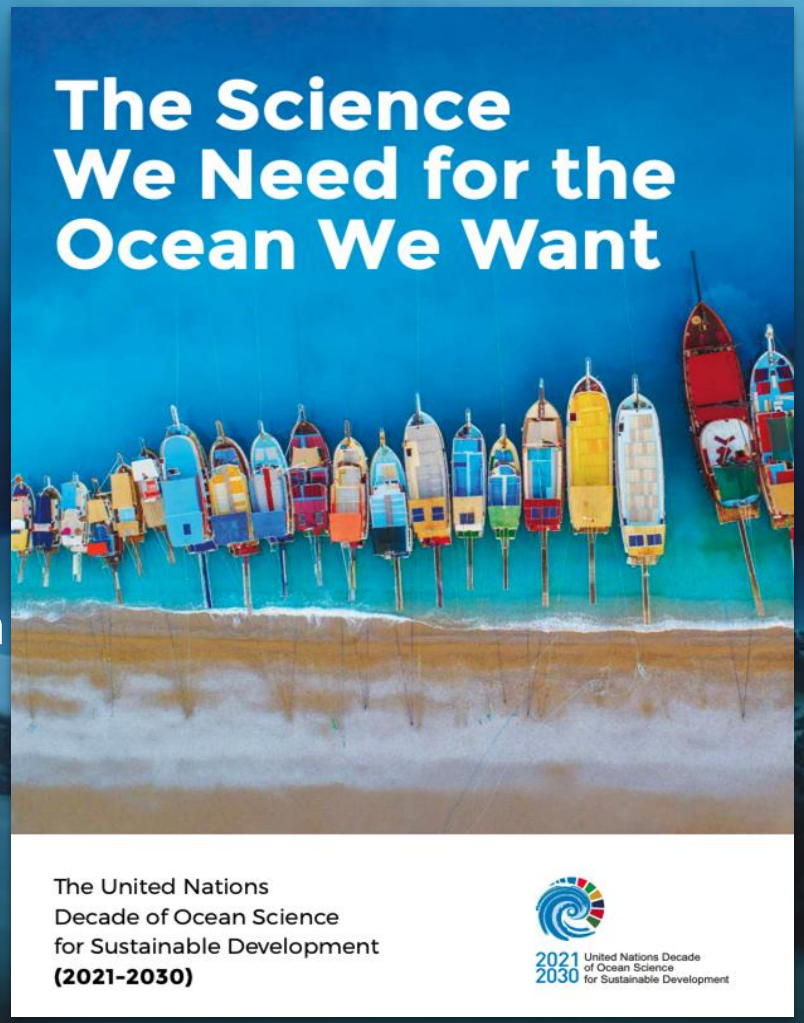
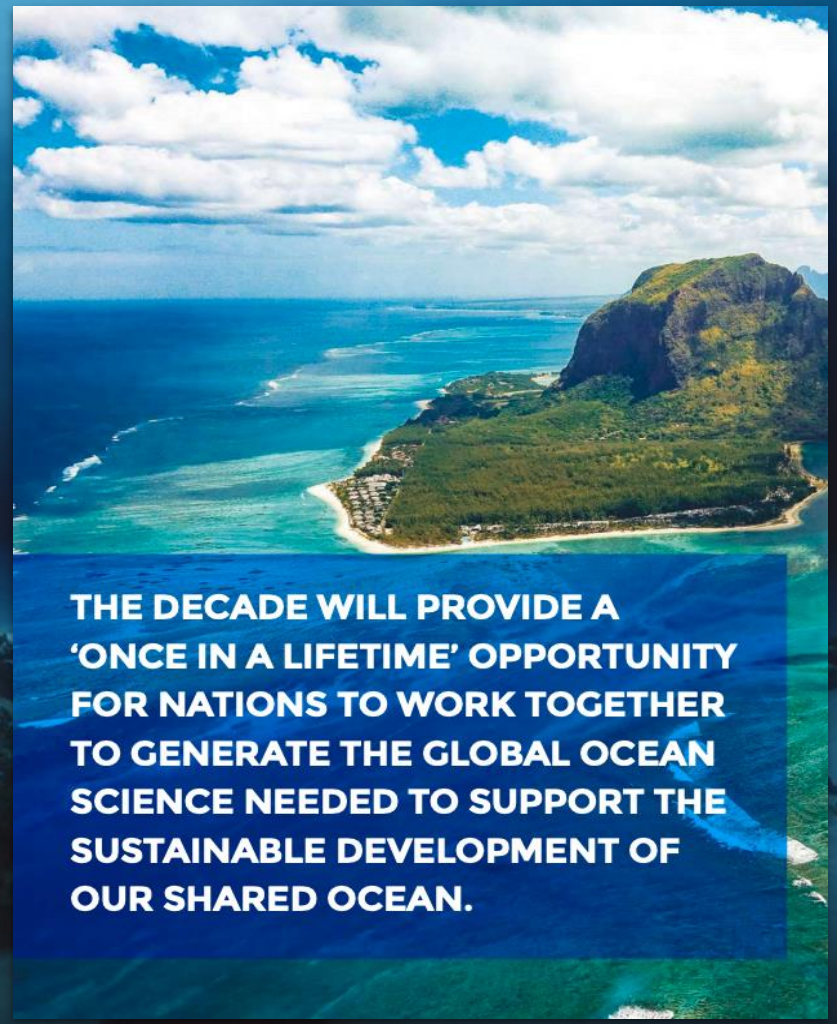
UN Decade of Ocean Science for Sustainable Development (2021-2030)

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

14 LIFE BELOW WATER

- 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





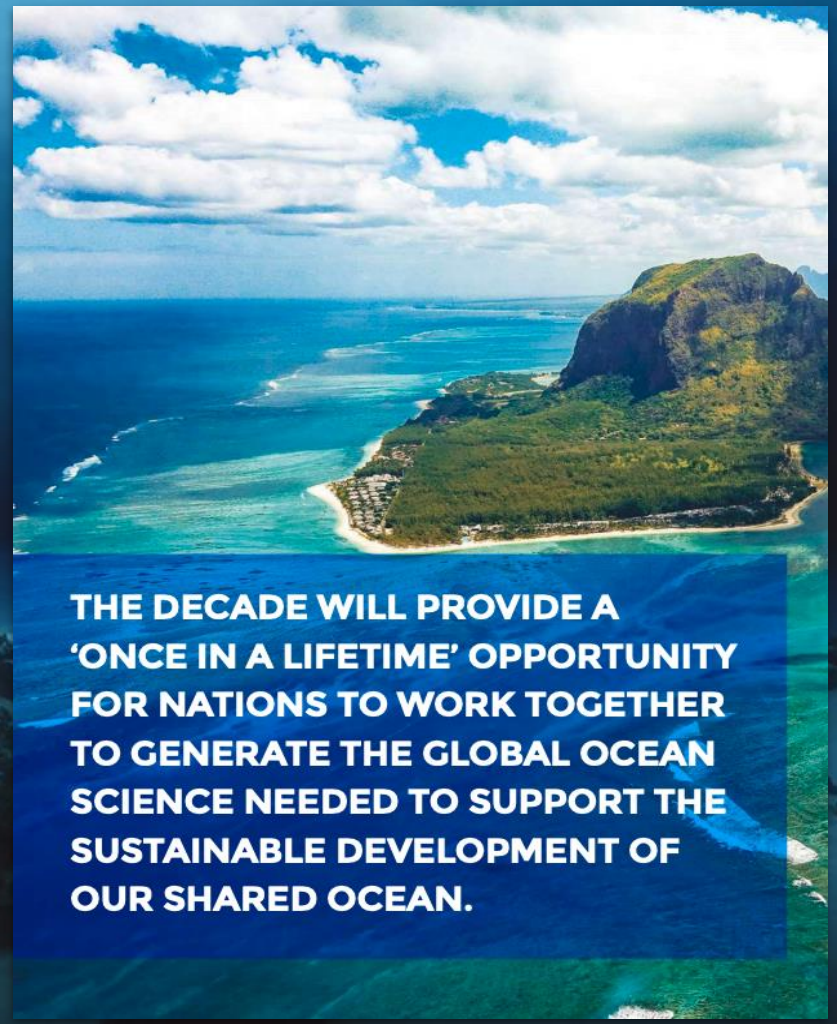
https://unesdoc.unesco.org/ark:/48223/pf0000265198

Final Thought:

SDG14 – and likely, other SDGs – will not be achievable without a comprehensive map of the world ocean floor

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

14 LIFE BELOW WATER



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Help Us Reveal the Deep

Consider sharing your data.

Encourage your governments to support CSB.

We are here to help you!

Help us to achieve our 2030 goal.

Further information: ***bathydata@iho.int***, ***csb@seabed2030.org***

Thank you.

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