



United Nations
Educational, Scientific and
Cultural Organization



Intergovernmental
Oceanographic
Commission

Briefing on

The Nippon Foundation GEBCO Seabed 2030 Project



Dr Graham Allen
Acting Seabed 2030 Project Director

www.gebco.net

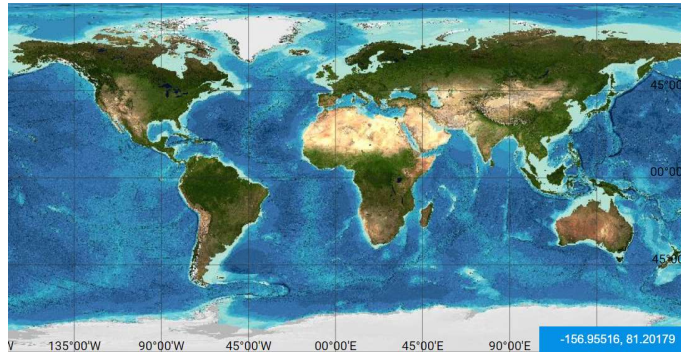
Slide 1

AGL1

Allen, Graham L., 09/06/2019

What is GEBCO?

1. **G**eneral **B**athymetric **C**hart of the **O**cean



GEBCO 2014

What's unique:

- Entire ocean
- Direct measurements

3. A **voluntary** community of international **scientists** and **hydrographers** collaborating with the support of their parent organizations.'



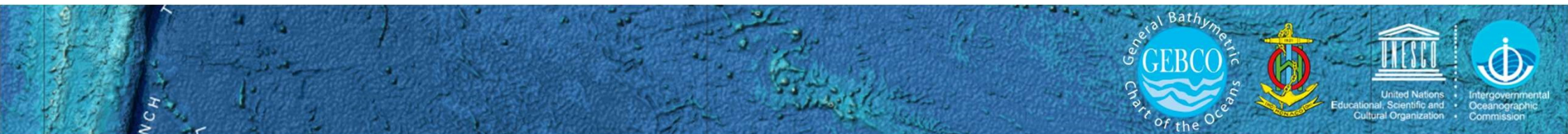
2. A **IHO** & **IOC** joint Project



Intergovernmental
Oceanographic
Commission

International
Hydrographic
Organization

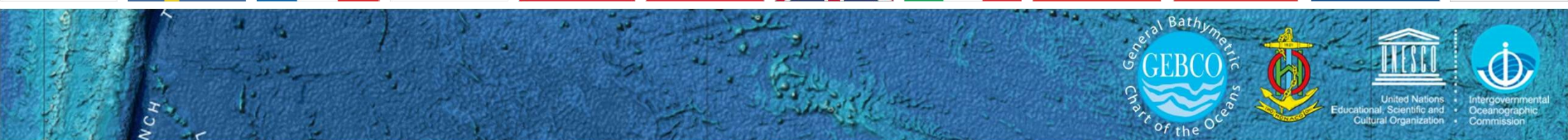
GEBCO started by Prince Albert I of Monaco in 1903.



What is GEBCO?

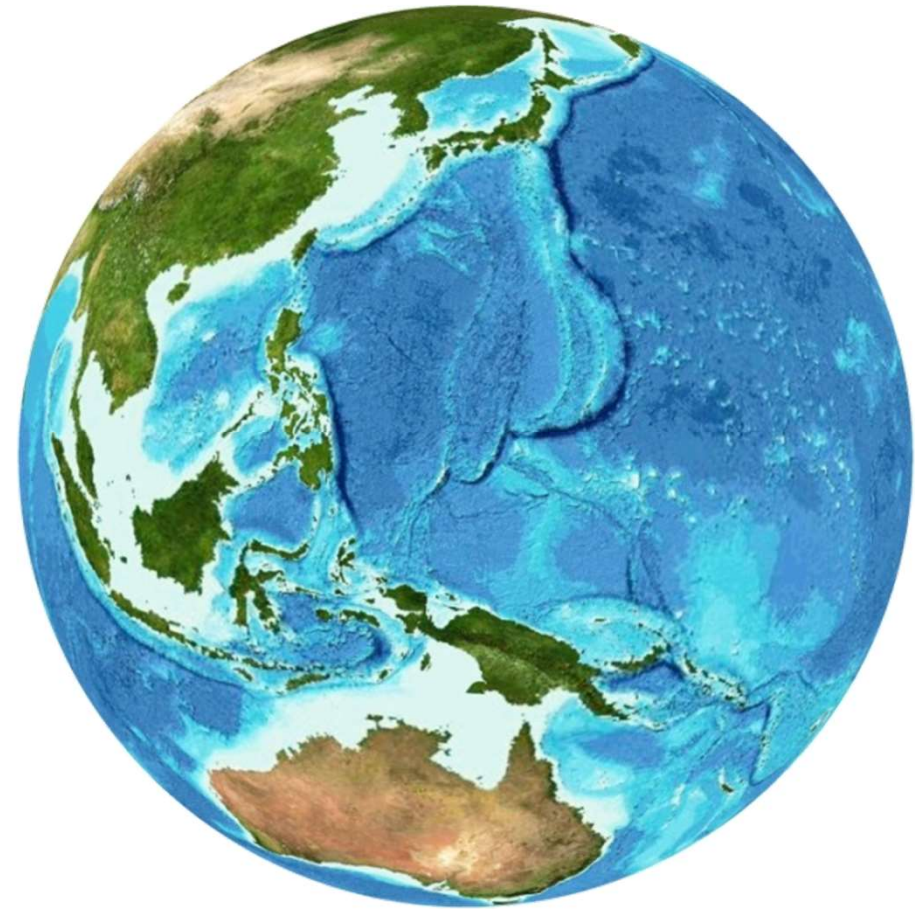
Directed by the *GEBCO Guiding Committee* and supported by *sub-committees* and *ad hoc working groups*:

- Technical Sub-Committee for Ocean Mapping (TSCOM)
- Sub-Committee for Undersea Feature Names (SCUFN)
- Sub-Committee for Regional Undersea Mapping (SCRUM)
- Sub-Committee on Communications, Outreach & Public Engagement (SCOPE)
- IHO-IOC GEBCO Cook Book Working group



GEBCO outputs

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



Capacity Development

Training a new generation of scientists and hydrographers in ocean bathymetry



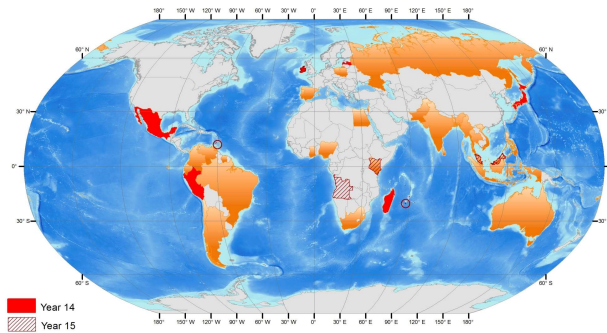
Postgraduate Certificate in Ocean Bathymetry

Taught at:

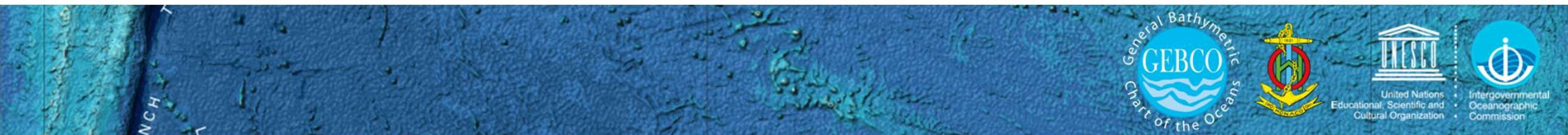
The Center for Coastal and Ocean Mapping / Joint Hydrographic Center;
University of New Hampshire, USA

Funded by:

The Nippon Foundation of Japan

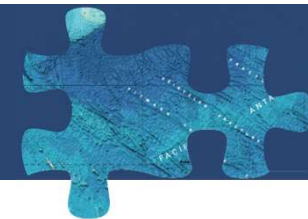


90 GEBCO-NF Alumni Scholars from 40 countries





What is The Nippon Foundation ?



*The **Nippon Foundation** is a private Japanese-based, non-profit grant-making organization with a mission based around philanthropic activities to pursue global maritime development and assistance for humanitarian work.*

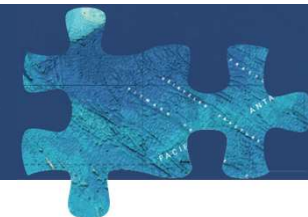





The Nippon Foundation-GEBCO Seabed 2030 Project




The Nippon Foundation – GEBCO Seabed 2030 Project



Vision Established through 2016 Forum for Future Ocean Floor Mapping




Yohei Sasakawa
Chairman
The Nippon Foundation



Forum for Future Ocean Floor Mapping

The Nippon Foundation – GEBCO – Seabed 2030
Roadmap for Future Ocean Floor Mapping

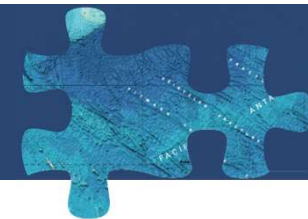


Project Announced at 2017 UN Ocean Conference





Seabed 2030



A collaborative project between The Nippon Foundation and GEBCO 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**.



United Nations
Educational, Scientific and
Cultural Organization

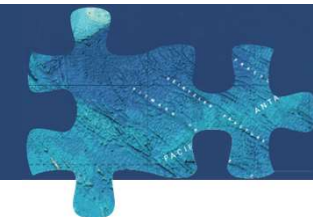


Intergovernmental
Oceanographic
Commission

The **General Bathymetric Chart of the Oceans (GEBCO)** organization operates under the joint auspices of the [International Hydrographic Organization \(IHO\)](#) and the [Intergovernmental Oceanographic Commission \(IOC\)](#) of UNESCO



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



United Nations

A/RES/72/73



General Assembly

Distr.: General
4 January 2018

Seventy-second session
Agenda item 77 (a)

**Resolution adopted by the General Assembly on
5 December 2017**

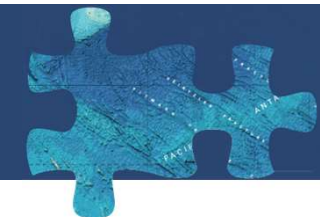
December 2017: Resolution A/RES/72/73 of the UN General Assembly



2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development



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



December 2017: Resolution A/RES/72/73 of the UN General Assembly

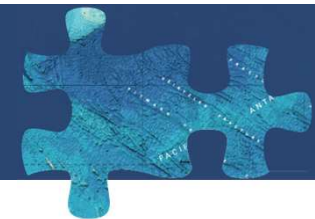
2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development

‘283. *Notes* that the depth of a **significant percentage of the world’s oceans** ... has **yet to be measured directly** and that **bathymetric knowledge underpins** the safe, **sustainable** and cost-effective execution of **almost every human activity** in, on or under the sea;’

‘284. *Welcomes* the work of **GEBCO** ... and the subsequent development of the **Seabed 2030 project** for improving bathymetry globally;’

‘285. *Encourages* Member States to consider contributing to mechanisms that encourage the **widest possible availability of all bathymetric data**, so as to support the sustainable development, management and governance of the marine environment;’

Why are Bathymetry Data Important?

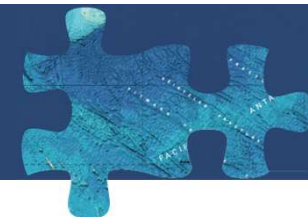


- Nautical charts
- Submarine cables
- Oil and gas exploration
- Hazard management
- Ecosystem management
- Ocean Models
- Coastal/Marine Spatial Planning
- Ocean Exploration
- Coastal Change Analysis
- Sea Level Rise Mitigation
- New Energy Siting
- Marine heritage

1. Supports UN Decade & SDG-14
2. Data-based management of marine environment



How much of the ocean is mapped?



$$X + Y + Z = 100\%$$

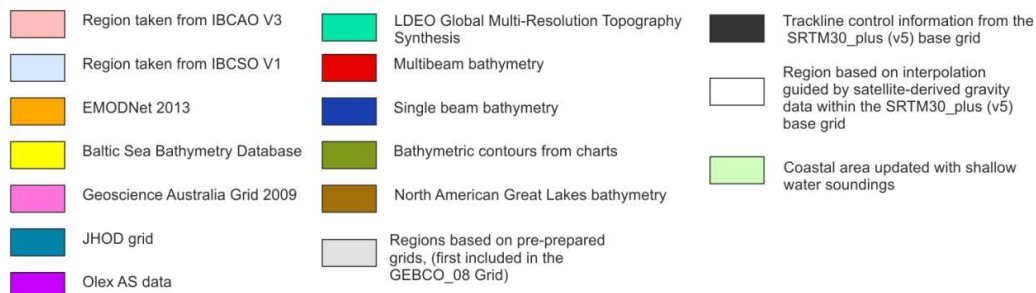
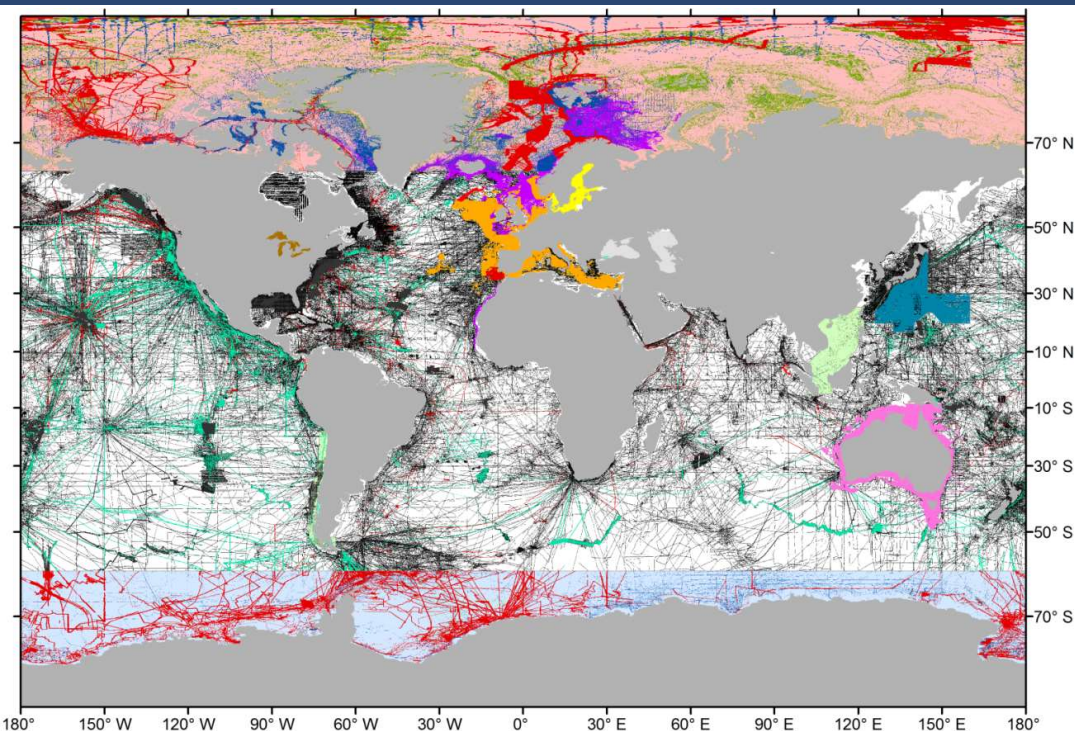
X: Data in GEBCO 2014

X = 6%

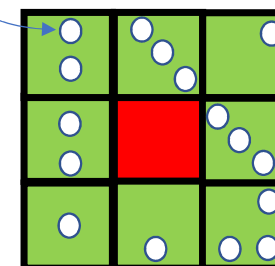
Y: Data that exists but not yet in GEBCO

- Public
- Embargoed

Z: Data that must be measured (map the gaps)

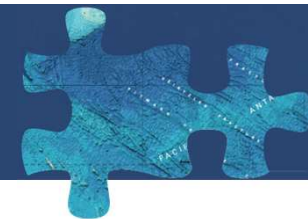


Data point

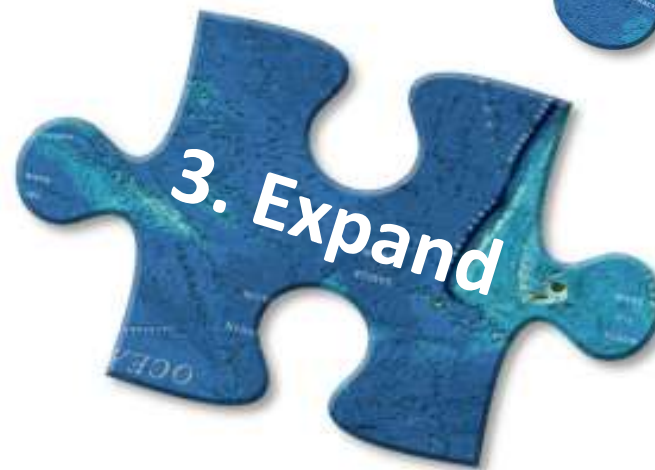


6% of GEBCO 2014 cells have data
94% interpolated data

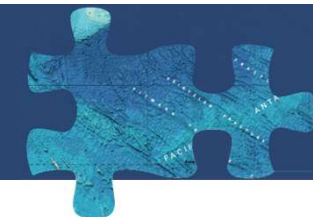
Seabed 2030 Strategy



Today



Tomorrow



Existing data

- Share data with Seabed 2030 Centers

Regional mapping initiatives

- Share maps with Seabed 2030 Centers

Coordinating with IBCs

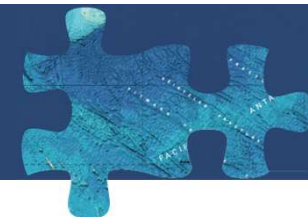


- Seabed 2030 Atlantic/Indian Oceans Data Center
 - IBC of the Caribbean Sea & Gulf of Mexico (IBCCA)
 - IBC of the Central Eastern Atlantic (IBCEA)
 - IBC of the Mediterranean (IBCM)
 - IBC of the Western Indian Ocean (IBCWIO)
- Seabed 2030 South & West Pacific Data Center
 - IBC of the South Eastern Pacific (IBCSEP)
- Seabed 2030 Arctic/North Pacific Data Center
 - IBC of the Arctic Ocean (IBCAO)
 - IBC of the Caribbean Sea & Gulf of Mexico (IBCCA)
- Seabed 2030 Southern Ocean Data Center
 - IBC of the Southern Ocean (IBCSO)





Seabed 2030: Data Centers



REGIONAL CENTERS

1. North Pacific-Arctic Ocean



Stockholm University



University of New Hampshire

2. South & West Pacific Ocean



NIWA
Taihoro Nukurangi



Land Information
New Zealand
Ihira te Whenua

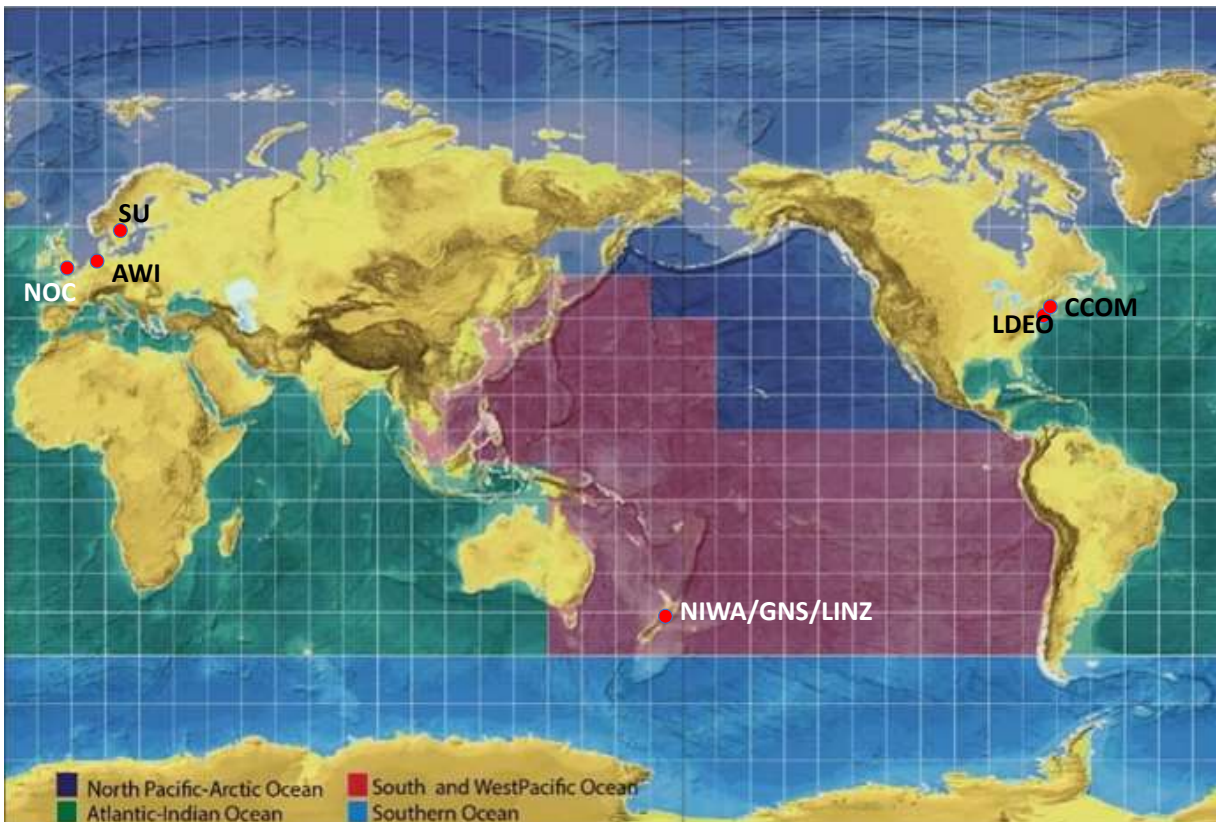
3. Atlantic-Indian Ocean

Lamont-Doherty Earth Observatory
COLUMBIA UNIVERSITY | EARTH INSTITUTE

4. Southern Ocean



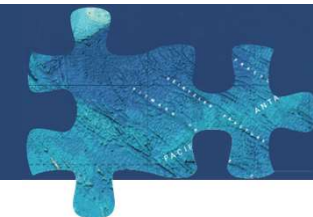
ALFRED-WEGENER-INSTITUT
HELMHOLTZ-ZENTRUM FÜR POLAR-
UND MEERESFORSCHUNG



GLOBAL CENTER



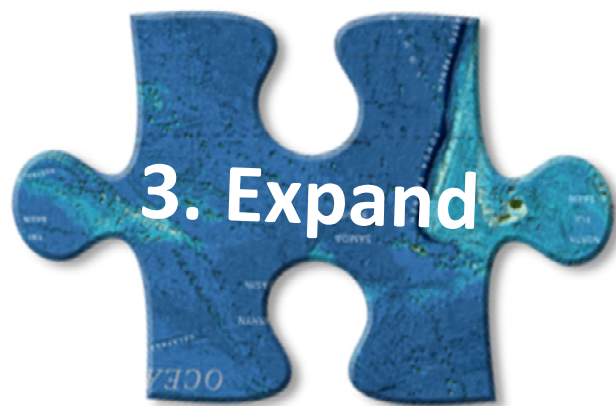
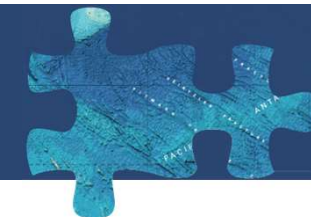
National Oceanography Centre
NATURAL ENVIRONMENT RESEARCH COUNCIL



2. Optimize

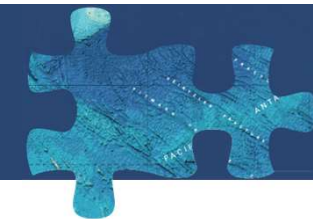
- Optimize and maximize existing equipment**
 - Turn it on & share the data

- Optimize ship tracks**
 - Route through the gaps (map the gaps)

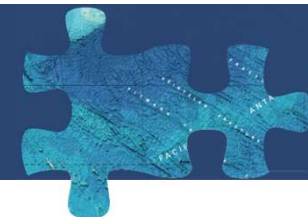


□ Increase mapping activity

- Research expeditions
- Survey expeditions
- Crowd Sourced Bathymetry (CSB)
 - Fishing fleet
 - Maritime industries
 - Leisure
 -

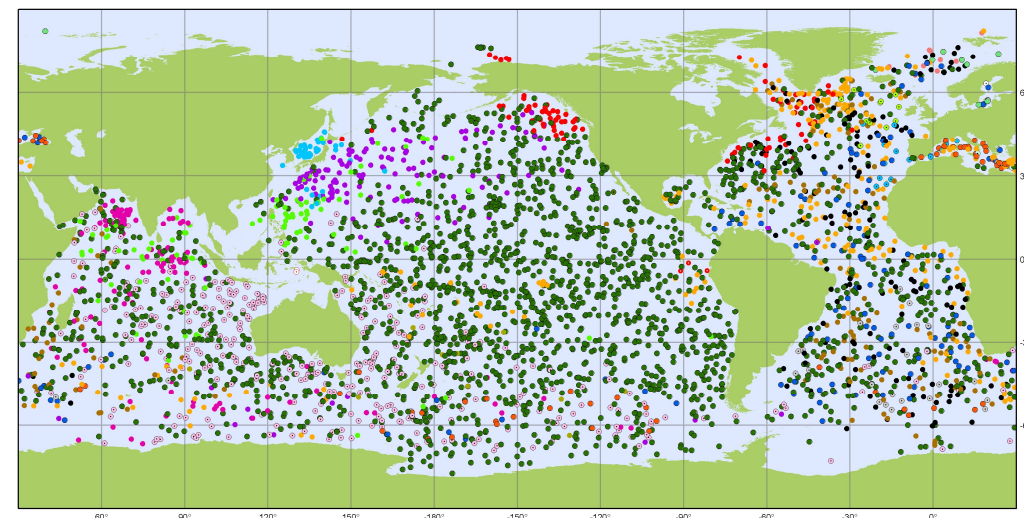


- ❑ **Accelerate technology innovation uptake**
 - Autonomous and unmanned vessels



4. Innovate

Argo floats – a model for Seabed 2030?



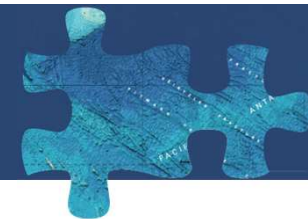
Argo National contributions - 3909 Operational Floats
 Latest location of operational floats (data distributed within the last 30 days) January 2019

- | | | | | | |
|-------------------|-----------------|-----------------|--------------------|---------------------------|--------------|
| ● ARGENTINA (1) | ● EUROPE (123) | ● INDIA (124) | ● KENYA (1) | ● PERU (3) | ● USA (2194) |
| ● AUSTRALIA (354) | ● FINLAND (2) | ● INDONESIA (2) | ● MEXICO (1) | ● POLAND (9) | |
| ● BRAZIL (3) | ● FRANCE (266) | ● IRELAND (11) | ● NETHERLANDS (24) | ● KOREA, REPUBLIC OF (45) | |
| ● CANADA (92) | ● GERMANY (161) | ● ITALY (62) | ● NEW ZEALAND (11) | ● SPAIN (16) | |
| ● CHINA (97) | ● GREECE (3) | ● JAPAN (149) | ● NORWAY (9) | ● UK (146) | |

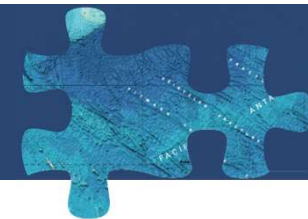




Seabed 2030 Progress to date



- GEBCO 2019 release
- Technology innovation



$$X + Y + Z = 100\%$$

X: In GEBCO

Y: Exists, not in GEBCO

Z: The gaps

X+Y = mapped

GEBCO 2014

$$X = 6\%$$

32,000,000 square kilometres

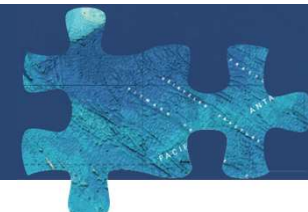
GEBCO 2019

$$X = 15\%$$

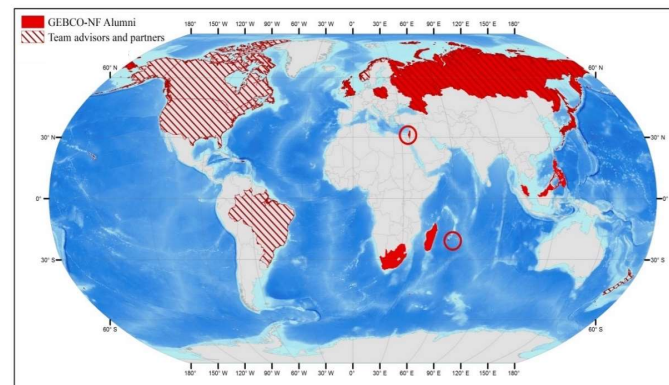




Progress to date – Technology innovation



GEBCO-NF Alumni Team enter XPRIZE



90 GEBCO-NF Alumni
from 40 countries

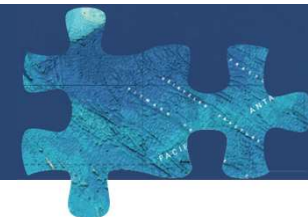


Shell OCEAN DISCOVERY XPRIZE®

A \$7 million global competition which challenged teams to advance deep sea technologies for autonomous, ocean mapping.



Progress to date – GEBCO-NF Alumni

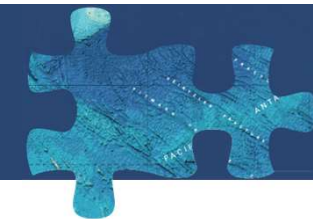


GEBCO-NF Alumni team win XPRIZE, 31st May 2019



Shell
OCEAN DISCOVERY XPRIZE[®]

How to contribute to Seabed 2030



Seabed 2030 relies on:

- **SHARE:** Inclusion of all bathymetric data into GEBCO Ocean Map
- **EXPAND:** Expanding crowd-sourced and traditional mapping expeditions

To achieve Seabed 2030 Vision & support UN Decade and SDG-14:

- Seabed 2030 requires a regulatory environment that **SUPPORTS** and **FACILITATES** widespread **collection of bathymetric data** and
- Ability to **contribute data to Seabed 2030** for inclusion in GEBCO

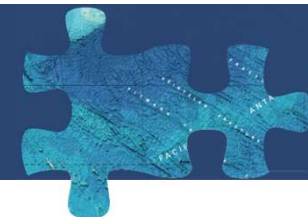
Seabed 2030 provides nations a mechanism to:

- ✓ Support UN Decade & SDG-14
- ✓ Access data to manage marine environments





Seabed 2030 thanks



Sponsors



Regional and Global Center hosts



@seabed 2030 

seabed2030.org