

A world map with a bathymetric color scale, showing ocean depths in shades of blue and landmasses in green and brown. The map is centered on the Atlantic Ocean.

Outreach Working Group 2018 Report

Hyo Hyun Sung, Vicki Ferrini, and Eunmi Chang

Content

- 1. GEBCO Outreach WG migrate into a formal GEBCO subcommittee**
- 2. The Progress of GEBCO outreach**
- 3. Key Performance of GEBCO Outreach in 2017-2018 Nov.**
- 4-1 Development of Outreach front page**
- 4-2 Subpage for education under the Outreach Front page**
- 5. Future plan * Work Plan (2019-2020)**

1. GEBCO Outreach WG migrate into a formal GEBCO subcommittee.

- ✓ We developed Terms of Reference and Rule of [Procedure](#) (Doc. GGC35/2/9)
- ✓ We decided the formal full name and Acronym for Sub-committee
(SCOPE: sub-committee on communications, outreach and public engagement)
- ✓ The new Sub-committee Members were comprised.

1. GEBCO Outreach WG migrate into a formal GEBCO subcommittee.

Formal Full Name and Acronyms for New Sub-Committee

- SCERC (**S**ub-**C**ommittee on **E**xternal **R**elations and **C**ommunications)
- SERC (**S**ubcommittee on **E**xternal **R**elations and **C**ommunication)
- SCOC(**S**ub-**C**ommittee on **O**utreach and **C**ommunication)
- SPARC(**S**ubcommittee on **P**ublic **A**ffairs, **R**elations, and **C**ommunication)
- **SCOPE**(**S**ub-committee on **C**ommunications, **O**utreach and **P**ublic **E**ngagement)
- SOC (**S**ubcommittee on **O**utreach and **C**ommunication)

1. GEBCO Outreach WG migrate into a formal GEBCO subcommittee.

Members of New Sub-Committee

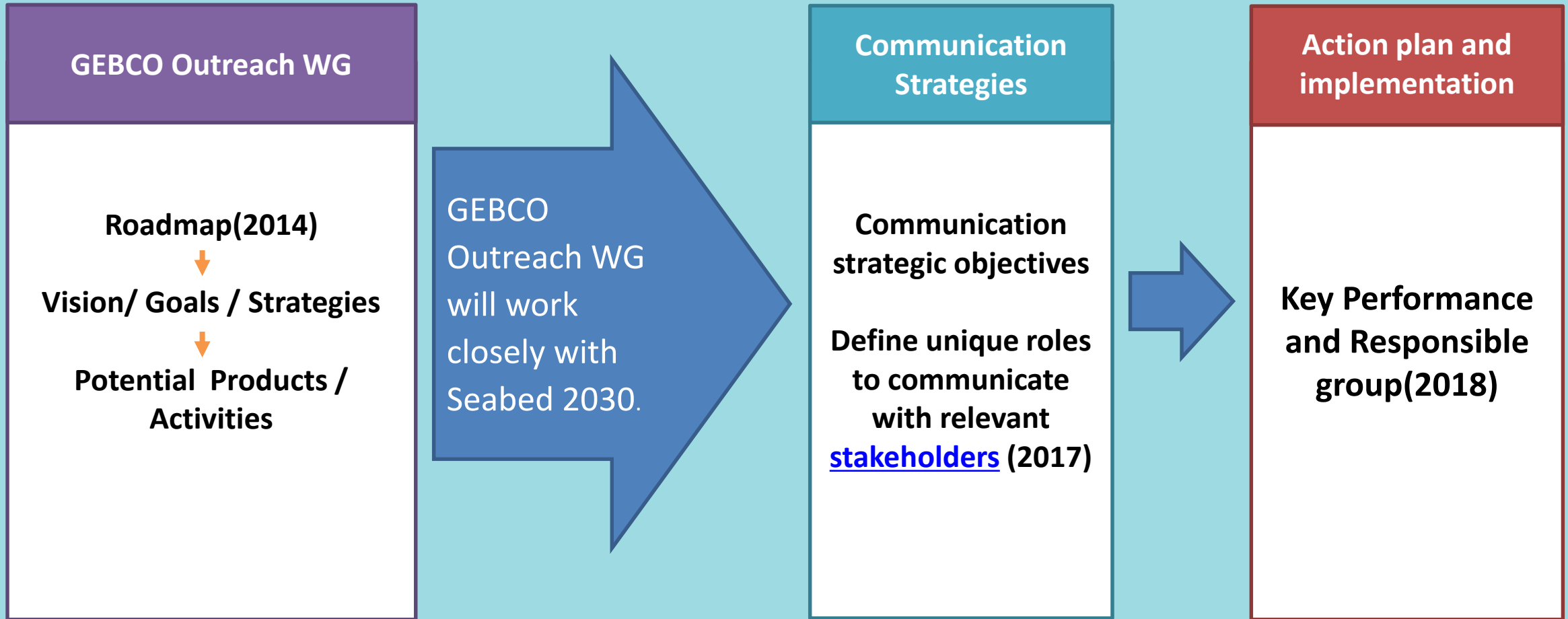
- **Current OWG/SC Members & GEBCO project/committee representatives**

- Hyo Hyun Sung, GEBCO (Chair OWG)
- Vicki Ferrini, SCRUM (Vice Chair OWG)
- Pauline Weatherall (BODC/Website Implementation Organization)
- Karen Marks (Science Group)
- Eunmi Chang (Education)
- David Millar (Industry)
- Roxy Wigley (NF-GEBCO Training Program and XPRIZE)
- Mark Zimmermann (TSCOM)
- Tim Kearns (GEBCO Symposium)
- Jennifer Jencks (DCDB, CSB WG)

- **OWG/SC Members To Be Determined:**

- SCUFN – TBD by SCUFN chairman,- Seabed 2030 - TBD by Director

2. The Progress of GEBCO outreach



3. Key Performance of GEBCO Outreach in 2017-2018 Nov.

- **Mission:**

- ✓ Broadening awareness of the GGC activity and the use of GEBCO
- ✓ Developing outreach contents and strategies for each stakeholder to share and contribute the bathymetric data

- **Methods:**

- ✓ Define the potential target groups and outreach goals and derive the message to be delivered(2017)
- ✓ Summarize the available data and draw core content that reflects the characteristics of the target
- ✓ Provide a strategy for delivering content to potential target groups

3. Key Performance of GEBCO Outreach in 2017-2018 Nov.

- **Developing outreach content and information delivery strategy for each target group**
 - ✓ **Define outreach stakeholders and clarify objectives**
 - Identify potential stakeholders groups by proposed in action plan of 2017 Outreach WG
 - Clarify outreach objectives for each potential stakeholder group
 - ✓ **Develope contents**
 - Organize both common and individual data for each stakeholders based on GEBCO data
 - Derive 'Killer Contents' that can be performed by using GEBCO data for each stakeholders
 - Create outreach information content for each potential stakeholder group

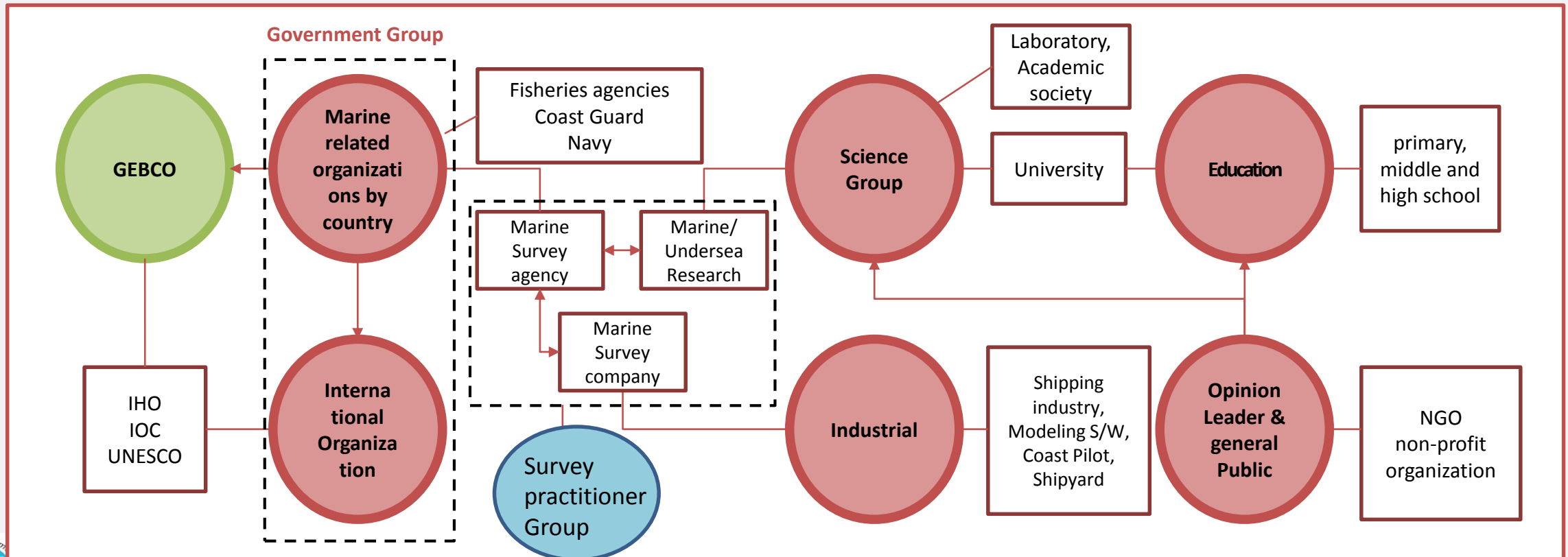
3. Key Performance of GEBCO Outreach in 2017-2018 Nov.

- Developing outreach content and information delivery strategy for each target group

Classification	Contents	Note
Define potential stakeholders	Define specific target group (6 groups)s and objectives for 6 groups	- Marine Science / Industry / Government / Education / Survey / Opinion Leader
Derive Message	Derive the core message to deliver to each target group	- Sharing & contributing depth data - The need for marine chart, etc.
Organize available data	Organize common available data for all targets and individual available data for each target group	- Bathymetric data - Marine name information, digital chart, etc.
Derive Killer Contents	Derive core Killer Contents for each target group	- Data modeling, data link, etc.
Making Contents	Create contents based on Message, available data, Killer Contents, etc.	- Poster, video

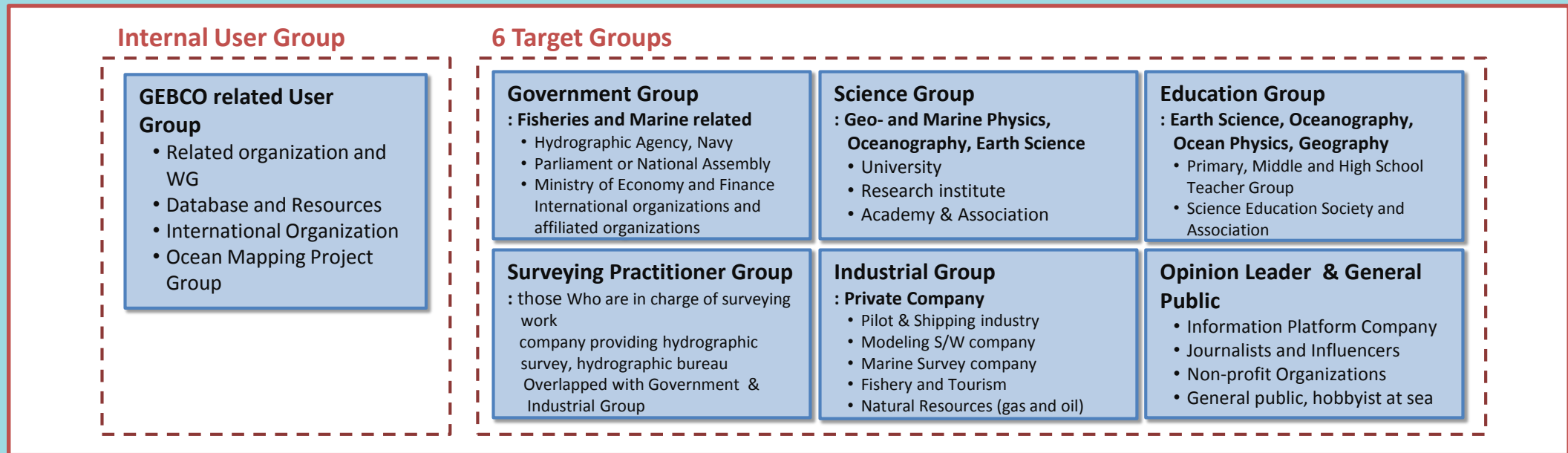
3. Key Performance of GEBCO Outreach in 2017-2018 Nov.

- **Conjunction with multiple user groups**
 - ✓ **Define outreach targets**
 - Detailed users of each target group were elaborated despite of being overlapped.



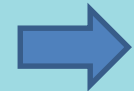
3. Key Performance of GEBCO Outreach in 2017-2018 Nov.

- Investigate the detailed users of each target group
 - ✓ Performs an investigation into 64 organizations and projects of internal user group, more than 400 organizations of 6 target groups



3. Key Performance of GEBCO Outreach in 2017-2018 Nov.

- Investigate the detailed users of each target group
 - ✓ Performs an investigation into 64 organizations and projects of internal user group, and 540 organizations of 6 target user groups.



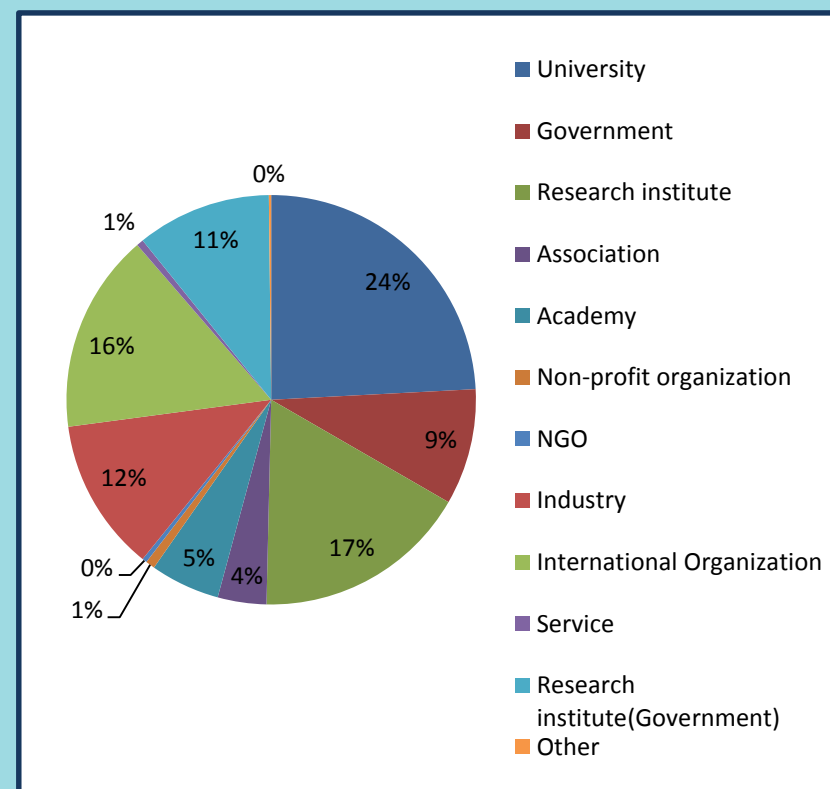
We collected email addresses of more than 540 targets for outreach activities

Classification	Country	Name of Organization	Department or sub-agency	Website	email
University	UK	Aberdeen University	Geography and Environment	www.abdn.ac.uk/study/postgraduate-research/research-areas/874/geography-and-environment/	pgrsadmission@abdn.ac.uk
Academy	USA	Acoustical Society of America (ASA)	Technical Committee on Acoustical Oceanography	tcaoasa.org/	asa@acousticalsociety.org
Research Institutions (Government)	USA	Alaska Fisheries Science Center	Auke Bay Laboratories	www.afsc.noaa.gov/abl/default.php	Phil.Mundy@noaa.gov (Phil Mundy Director) Peter.Hagen@noaa.gov (Peter Hagen, Deputy Director)
Research Institutions (Government)	Germany	Alfred-Wegener-Institut für Polar- und Meeresforschung (AWI)	Department of Geosciences	https://www.awi.de/en/science/geoscience/s.html	Prof. Dr. Ralf Tiedemann, head of department, Ralf.Tiedemann@awi.de Aysel Sorensen, Assistant in FB Geo, Aysel.Sorensen@awi.de
Academy	USA	American Association of Geographers		www.aag.org/	gaia@aag.org
Association	USA	American Bureau of Shipping (ABS)	American Bureau of Shipping : USA (ABS)	www.eagle.org/en.html	ABSGlobalSupport@eagle.org

3. Key Performance of GEBCO Outreach in 2017-2018 Nov.

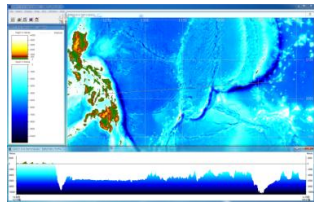
- Investigate the detailed users of each target group
 - ✓ Performs an investigation into 64 organizations and projects of internal user group, 540 organizations of 6 target user group

Classification	Amount
University	132
Government	50
Research institute	93
Association	21
Academy	30
Non-profit organization	4
NGO	2
Industry	66
International Organization	86
Service	3
Research institute(Government)	58
Other	1
Total	546



3. Key Performance of GEBCO Outreach in 2017-2018 Nov.

- Investigation of GEBCO available data
 - ✓ Organize data that can be used by user groups from numerous GEBCO website material
 - ✓ 7 materials can be used by user groups, 6 of them are available on GEBCO website for free-download (exception for Digital Atlas: charge, mail delivery)



Global gridded bathymetry data sets

- Global ocean depth data and visualization data
- 30 second & 1minute of spatial resolution and spatial extent that covers the world
- Support data format of netCDF, GeoTIFF, ESRI ASCII
- Free-download available on GEBCO website



Gazetteer of Undersea Feature Names

- Database of roughly 3,900 undersea features names and spatial locations in GEBCO
- Excel data download available from NOAA NGDC website
- Access available through REST API from the website



GEBCO Digital Atlas

- Packaged data of Global bathymetry data, contour, undersea feature names, etc.
- Composed with grid based bathymetric map and vector based boundary line data
- **Delivered in CD/DVD form through email purchase (£ 260)**



GEBCO World Map

- Print-available Global Bathymetric Map based on Global gridded bathymetry data
- The 2013 edition is made up of a single map that includes the entire world, but the 2014 edition is made up separately with the Arctic ocean and the Southern ocean.
- Free-download available on website as PDF file, with English undersea feature names

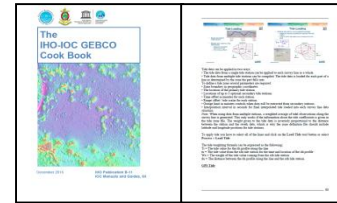
3. Key Performance of GEBCO Outreach in 2017-2018 Nov.

- Investigation of GEBCO available data
 - ✓ Organize data that can be used by user groups from numerous GEBCO website material
 - ✓ 7 materials can be used by user groups, 6 of them are available at GEBCO website for free-download (exception for Digital Atlas)



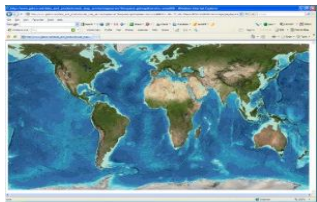
Historical GEBCO Charts

- GEBCO Charts of global bathymetry:
1st : 1903, 2nd : 1910-1930,
3rd : 1932-1966, 4th : 1958-1973, 5th : 1973-1982
- Offer bathymetric map by dividing the world into 24 zones (5th version divided into 19 zones)
- Saving image file(jpeg, png type) available from the website



IHO-IOC GEBCO Cook Book

- A manual that summarizes the technical processes and related materials for creating and processing GEBCO bathymetric data
- Free-download available on website as PDF file
- Composed with Gathering data/software, data cleaning, validation, gridding data, uncertainty, etc.



GEBCO Web Map Service

- Web based mapping service based on GEBCO_2014 Grid Data and offer REST API
- Free API available
- Support GetCapabilities, GetMap, GetFeatureInfo Request

3. Key Performance of GEBCO Outreach in 2017-2018 Nov.

- Analyze user's potential demands or needs

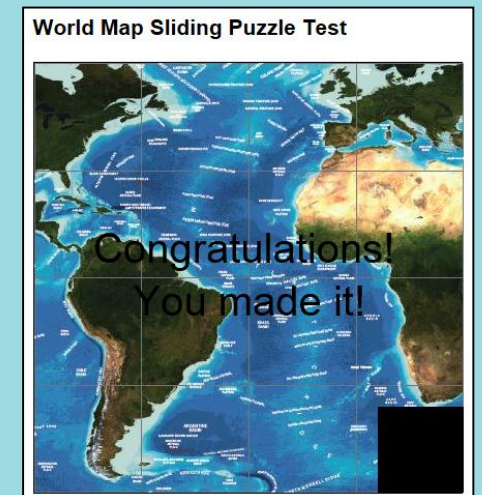
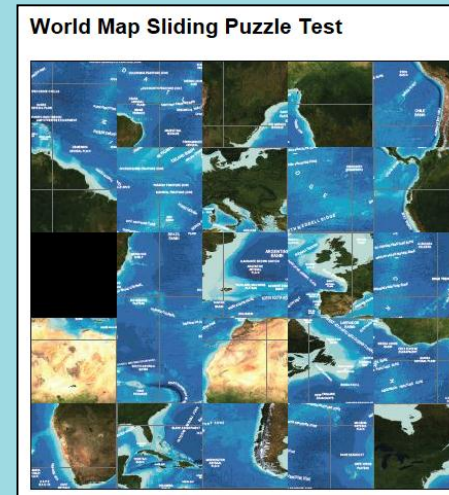
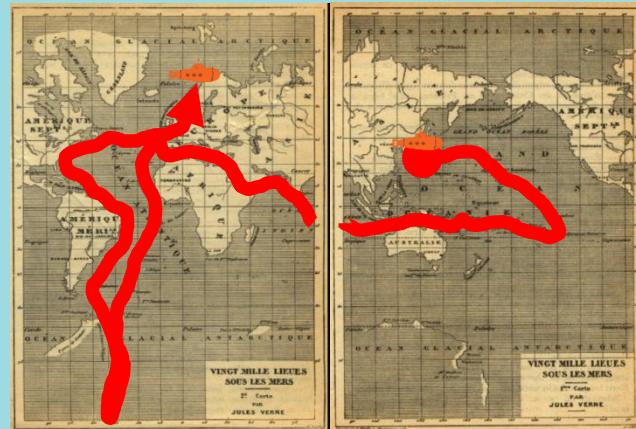
Classification	Contents	Examples
Who	Define specific targets for the 6 potential user groups	<ul style="list-style-type: none"> Define specific targets for Scientist group Geo- and Marine Physics, Oceanography, Earth Sciences, Universities, Research Centers, Societies, Associations
Problem	Problems issued by each specific user group	<ul style="list-style-type: none"> Not many of the researchers know about the existence of GEBCO itself or resources
Important	Importance of each user group	<ul style="list-style-type: none"> The widest and most user of GEBCO output Contribute to activation of GEBCO usage
When	When (or where) does each user group can practically use GEBCO Data?	<ul style="list-style-type: none"> Performing academic research in each related field
What	What GEBCO Data can be used by each user group?	<ul style="list-style-type: none"> Global bathymetry data Gazetteer of undersea feature names GEBCO Web Map Service Historical GEBCO Charts
How	How does each user group practically use GEBCO Data?	<ul style="list-style-type: none"> Perform data modeling analysis based on Global bathymetry data Academic research of undersea feature type, location, name based on GEBCO WMS and Undersea feature names Scientific study of the change of coastline depth based on Historical GEBCO Chart
Why	Why should they use GEBCO Data?	<ul style="list-style-type: none"> Recognized through international organizations based on actual survey data or RS data Comprehensive data including global coverage

3. Key Performance of GEBCO Outreach in 2017-2018 Nov.

- **Development of Subpage in GEBCO outreach:**
 - ✓ **Focus development of ideas on:**
 - Target Group
 - ex) Communication strategies for Industry Targets (David Millar)
 - Message
 - Desired Action and Products
 - ✓ **Development of the outreach products for the potential targets**
 - ex) poster, PPT, video file..
 - ex) From Novels to Fact Sheets (Eunmi Chang)

3. Key Performance of GEBCO Outreach in 2017-2018 Nov.

- **Education for next generation** (<http://www.gebco-outreach.net>)
 - ✓ **Updating Subpage for Secondary School Students:**
Development of online jigsaw puzzle for GEBCO World Map, Poster etc.



Jules Gabriel Verne,
Twenty Thousand Leagues Under the sea:
Nautilus's navigating routes (1867 ~ 1868)

3. Key Performance of GEBCO Outreach in 2017-2018 Nov.

- Education for next generation :

- ✓ Poster for students

General Bathymetric Chart of the Oceans (GEBCO)
- Global Bathymetric Data Set -

We are expecting fantastic ocean experts & explorers in the future

GEBCO(<http://www.gebco.net>) consists of an international group of experts who work on the development of a range of bathymetric data sets and data products with the aim of providing the most authoritative publicly-available bathymetry for the world's oceans

From novel to fact sheets

Novel "Twenty Thousand Leagues Under the sea"
In 1870, a French novelist wrote 20,000 leagues under the sea which is regarded as the first adventure classic novel.


In the novel, a marine biologist professor Aronnax explores the world's oceans on the Nautilus headed by Captain Nemo.

Jules Gabriel Verne
• French • Works
• 1828 – 1905 • Twenty Thousand Leagues Under the sea
• Occupation • From the Earth to the Moon
• Novelist • Around the World in Eighty Days
• Poet • Five Weeks in a Balloon
• Playwright

2. Nautilus's navigating routes (1867 ~ 1868)
These maps show the route of Nautilus in the book.



Fact sheet : 20,000 League is not a depth but distance

1. Did Nautilus navigate 20,000 Leagues deep?
• 1 League equals 4 Kilometers

• 20,000 League equals **80,000 Kilometers**
• The diameter of the Earth is **12,756 Kilometers**
If 20,000 Leagues is deep...

She must have penetrated the earth and go far away...

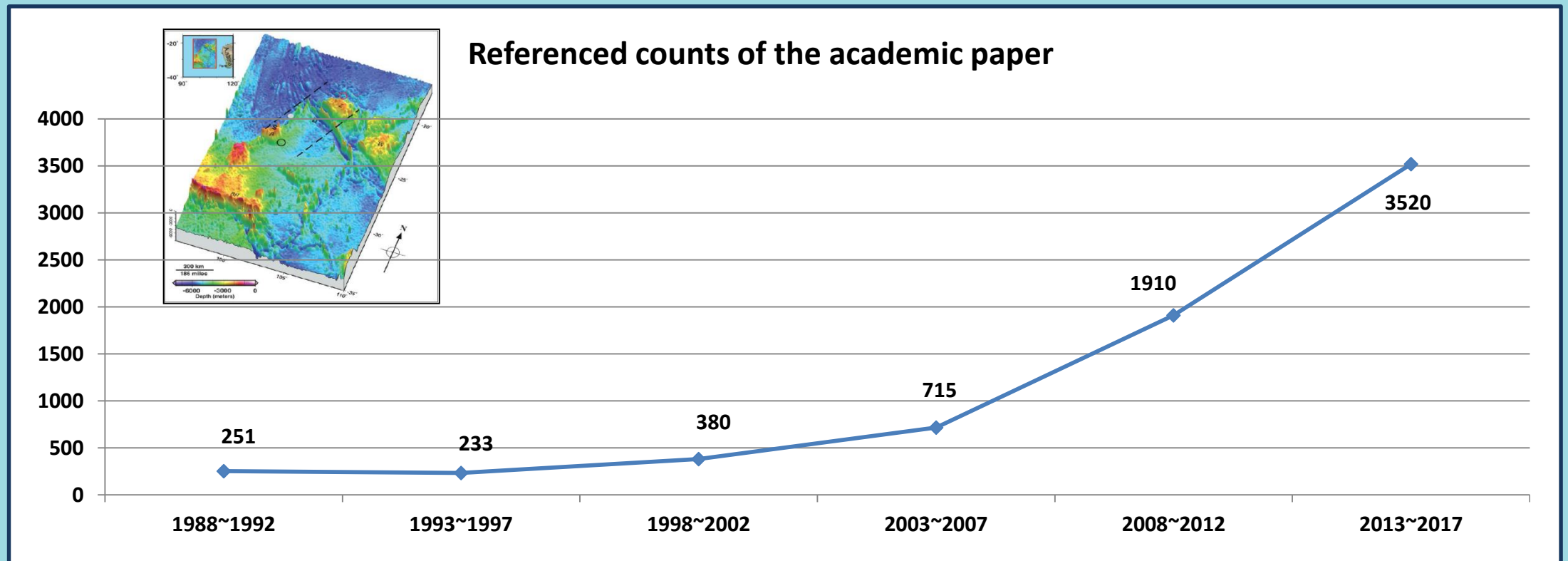
How could he write the novel?
There were many explorers and experts on ocean search....

Jules Verne several times mentions Commander **Matthew Fontaine Maury**, "Captain Maury" in Verne's book, a real-life oceanographer who explored the winds, seas, currents, and collected samples of the bottom of the seas and charted all oceans.
Verne would have known of Matthew Maury's international fame and perhaps Maury's French ancestry. References are made to other such Frenchmen as **Jean-Francois de Galaup, comte de Lapérouse**, a famous explorer who was lost while circumnavigating the globe; **Dumont D'Urville**, the explorer who found the remains of Lapérouse's ship; and **Ferdinand Lesseps**, builder of the Suez Canal and the nephew of the sole survivor of Lapérouse's expedition.
The *Nautilus* seems to follow the footsteps of these men: she visits the waters where Lapérouse was lost; she sails to Antarctic waters and becomes stranded there, just like D'Urville's ship, the *Astrolabe*; and she passes through an underwater tunnel from the Red Sea into the Mediterranean.

After that...
IHO and UNESCO IOC began to a big project **GEBCO (General Bathymetric Chart of the Oceans)** : <http://www.gebco.net>
And you can download materials on factsheets and educational material on seabed and many landform like seamount, guyot, trench, etc. : <http://www.gebco.net/outreach>
GEBCO operates under the joint auspices of the International Hydrographic Organization (IHO) and the Intergovernmental Oceanographic Commission (IOC) of UNESCO

3. Key Performance of GEBCO Outreach in 2017-2018 Nov.

- Science Group
- ✓ How many scientists have used GEBCO Data for writing articles? We found huge increase in the figure.



3. Key Performance of GEBCO Outreach in 2017-2018 Nov.

- Scientist Group

- ✓ Poster for scientists

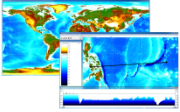
General Bathymetric Chart of the Oceans (GEBCO) - Global Bathymetric Data Set -

Do you need authoritative global bathymetry data?

GEBCO(<http://www.gebco.net>) consists of an international group of experts who work on the development of a range of bathymetric data sets and data products with the aim of providing the most authoritative publicly-available bathymetry for the world's oceans

GEBCO's products and services for scientific approach

Global Bathymetry Datasets




Content Summary

- Data Type : Grid
- Spatial Extent : Global
- Data Size : 43,200 x 21,600
- Spatial Resolution : 30 arc-second, 1 arc-minute
- Data Format : 1D/2D netCDF, INT16 GeoTIFF, ESRI ASCII
- Distribution : online downloadable
- Purchase : Free

https://www.gebco.net/data_and_products/gridded_bathymetry_data

Gazetteer of Undersea Feature Names




Content Summary

- Data quantity : about 3,900 undersea features
- Data Type : vector(point, polyline, polygon)
- Data Access Method : Web based REST API, download file from website
- File Format : Excel file (download file)
- REST API Info : <https://www.ngdc.noaa.gov/gazetteer/docs/manual/index.html>
- Purchase : Free

https://www.gebco.net/data_and_products/undersea_feature_names

Historical GEBCO Charts



Content Summary

- Data Type : Image
- Period : 1903 - 1982
- Total edition : 5 edition

1th	2nd	3rd	4th	5th
1903	1910-30	1932-66	1958-73	1973-82

- Data composition : made up of 24 sections (5th edition made up of 19 section)
- Distribution : online downloadable
- Purchase : Free

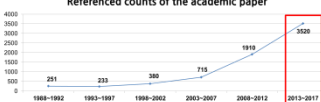
<http://iho-wms.net/gebco/>

GEBCO makes available a range of bathymetric products and services, find out more from http://www.gebco.net/data_and_products

How many people used the GEBCO's data?

1. Reference the academic paper

GEBCO is an international organization under IHO, and GEBCO's global bathymetry data is reliable and verified. According to the results of Google Scholar's paper search, GEBCO's bathymetry data is constantly cited in the academic paper. In recent years, the number of citations for 2013-2017 was 3520, which is about 14 times higher than that for 1988-1992.



Period	Referenced counts
1988-1992	251
1993-1997	233
1998-2002	360
2003-2007	715
2008-2012	1910
2013-2017	3520

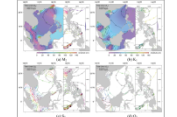
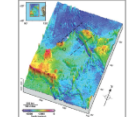
2. Users who visited the GEBCO website

To added GEBCO website menu usage count and data download count.

How to apply GEBCO's products to study?

1. For modeling & analysis in ocean sciences?

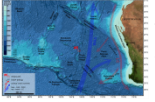
GEBCO's global bathymetry data can be used as the basis for analysis or modeling. (a) is an example of visualizing the seafloor of the area for searching Malaysia airlines. (b) is an example of GEBCO's bathymetry data for storm surge simulations in the South China Sea.



(a) W.H.F Smith, 2014, Seafloor in the Malaysia Airlines Flight MH370 Search Area.
(b) Kyeongok, Kim, 2018, Regional Real time Ocean Tide and Storm-surge Simulation for the South China Sea.

2. For study of bathymetric change or undersea features?

GEBCO builds and provides a database of locations and names of major undersea features around the world. Such information can add detail to textual information by adding visual information. (a) is a study of the ferromanganese component in the Dreck Hartog Ridge region of the Indian Ocean, undersea feature info add a geographical character for the study area.







(a) D. Zawadzki, 2018, Geochemistry of cobalt-rich ferromanganese crust from the Perth Abyssal Plain

How to contribute your data for GEBCO?

If you would like to contribute bathymetric data to GEBCO or make GEBCO aware of publicly-available data sets that we can use to improve our grids, then in the first instance please contact Pauline Weatherall (paw@bodc.ac.uk) – GEBCO Digital Atlas Manager
Find out more information from : https://www.gebco.net/about_us/contributing_data/

GEBCO operates under the joint auspices of the International Hydrographic Organization (IHO) and the Intergovernmental Oceanographic Commission (IOC) of UNESCO



General Bathymetric Chart of the Oceans

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

4-1. Development of Outreach front page



Groups of GEBCO Outreach Activities

The Working Group identify education and outreach needs required to support the GEBCO Ocean mapping community, and develop strategies to address those needs. It also create and maintain a wide range of resources to meet its training and outreach objectives.

<http://ziin2010.iptime.org>



Marine & Ocean Science

We hope that more and more scientists make use of GEBCO data.

[\[document\]](#)



Governments

Decision makers may recognized the importance of seabed surveying.

[\[document\]](#)



Education

We are focusing the next generation to become curious and aware of the seabed.

[\[document\]](#)
[\[site\]](#)



Local Survey Group

We surveyors should be proud of what we are doing. The results of qualified data play an important influence.

[\[document\]](#)



Industry

New technologies and data will expand our market and nourish our society.

[\[document\]](#)

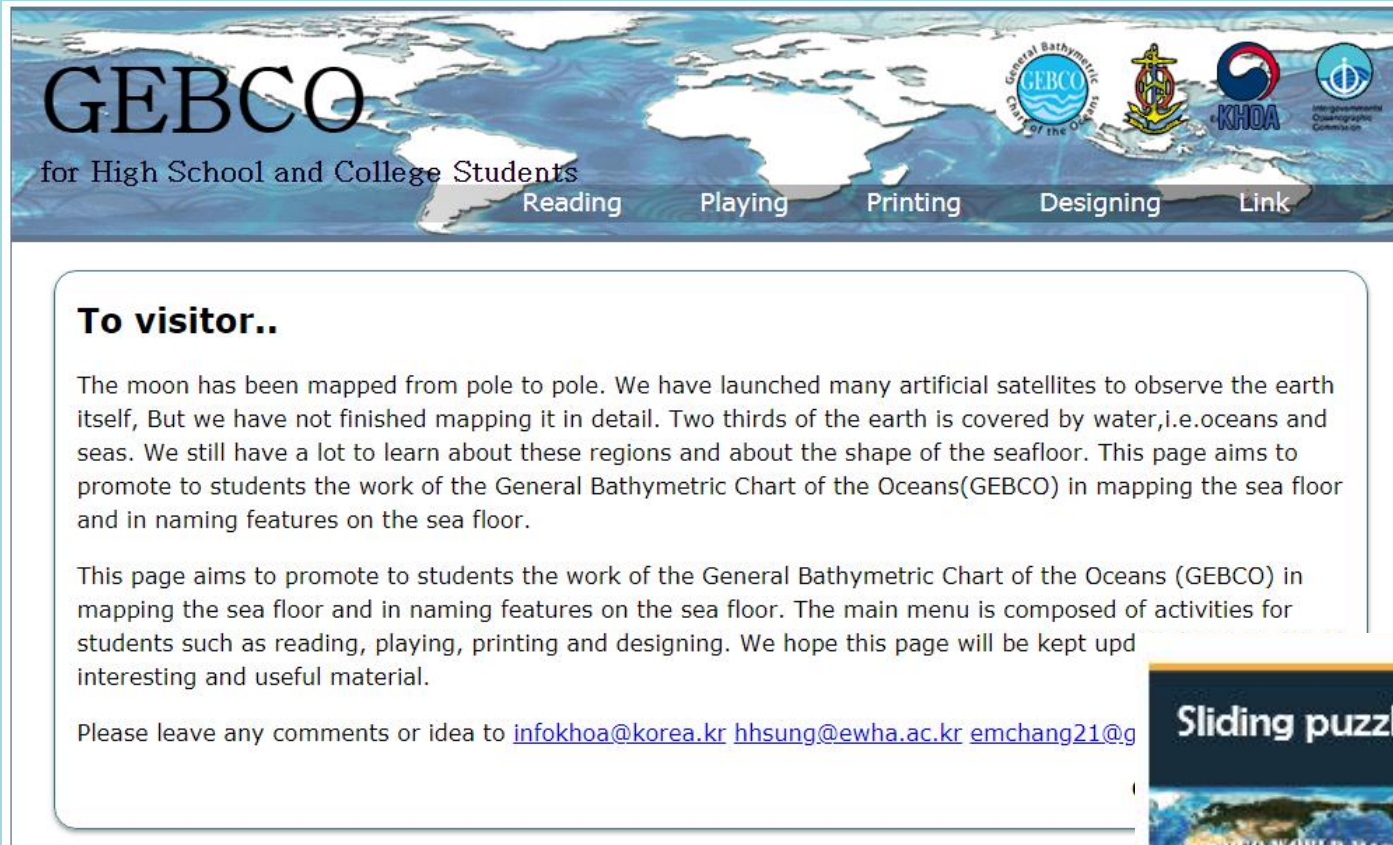


Opinion

Those who are interested in environmental conservation, sustainable development should know how bathymetric data Important

[\[document\]](#)

4-2. Subpage for education under the Outreach Front page



The screenshot shows the GEBCO Outreach Front page. At the top, the GEBCO logo is prominently displayed on the left, with the text "for High School and College Students" below it. To the right of the logo are four icons representing different activities: Reading, Playing, Printing, and Designing, each with a corresponding button. Further right are logos for the General Bathymetric Chart of the Oceans (GEBCO), the Korea Hydrographic and Oceanographic Data (KHODA), and the Intergovernmental Oceanographic Commission (IOC). Below the main navigation bar, there is a section titled "To visitor.." which contains two paragraphs of text and a list of email addresses for comments or ideas.

GEBCO
for High School and College Students

Reading Playing Printing Designing Link

To visitor..

The moon has been mapped from pole to pole. We have launched many artificial satellites to observe the earth itself, But we have not finished mapping it in detail. Two thirds of the earth is covered by water, i.e. oceans and seas. We still have a lot to learn about these regions and about the shape of the seafloor. This page aims to promote to students the work of the General Bathymetric Chart of the Oceans (GEBCO) in mapping the sea floor and in naming features on the sea floor.

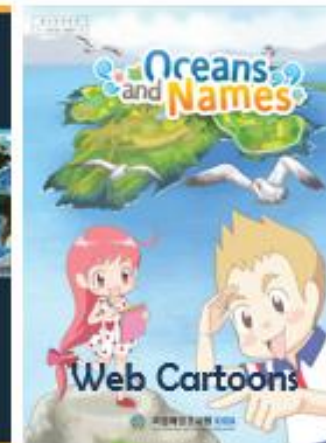
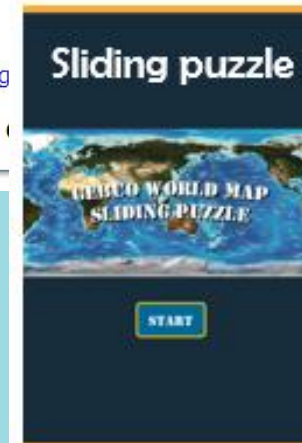
This page aims to promote to students the work of the General Bathymetric Chart of the Oceans (GEBCO) in mapping the sea floor and in naming features on the sea floor. The main menu is composed of activities for students such as reading, playing, printing and designing. We hope this page will be kept up interesting and useful material.

Please leave any comments or idea to infokhoa@korea.kr hhsung@ewha.ac.kr [!\[\]\(f9ccf36cb8f1dba8b11feb5692e99a8b_img.jpg\)

Here are diagrams for the Nautilus's navigating routes.

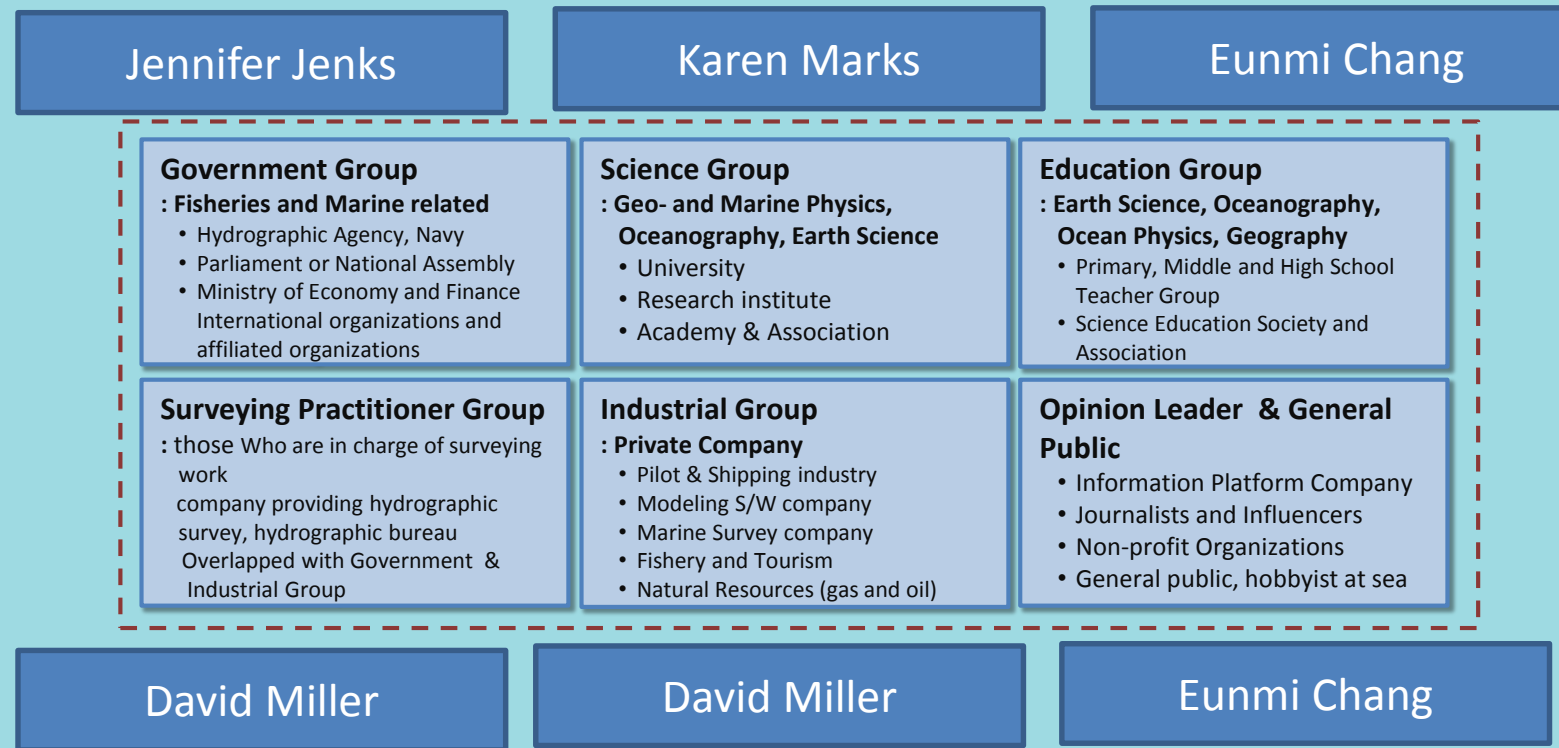
The image shows three maps illustrating the Nautilus's navigating routes. The left map shows the Atlantic Ocean with a route from Europe to North America. The middle map shows the Pacific Ocean with a route from North America to Asia. The right map shows the Indian Ocean with a route from Asia to Australia. The routes are marked with yellow lines and labeled with "GEBCO Bathymetry Data".](mailto:emchang21@g</p></div><div data-bbox=)

(<http://www.gebco-outreach.net>)



5. Future plan: Develop content material for each target group and stabilize the subpage and link to the GEBCO website.


- Fill the format of posters and more content for each target group



- Ask the names of targets and their addresses added into the excel sheets

Format of Posters

General Bathymetric Chart of the Oceans (GEBCO)
- Global Bathymetric Data Set -



You can use GEBCO data & You can produce GEBCO data

GEBCO(<http://www.gebco.net>) consists of an international group of experts who work on the development of a range of bathymetric data sets and data products with the aim of providing the most authoritative publicly-available bathymetry for the world's oceans

GEBCO's Data & Products

Global gridded bathymetry data
Gazetteer of Undersea Feature Names
GEBCO Web Map Service

How to use GEBCO's data and products?


1. Undersea feature information gathering of high seas 2. Marine resources information gathering of high seas

How to contribute your data for GEBCO?

If you would like to contribute bathymetric data to GEBCO or make GEBCO aware of publicly-available data sets that we can use to improve our grids, then in the first instance please contact Pauline Weatherall (paw@bodc.ac.uk) – GEBCO Digital Atlas Manager
Find out more information from : https://www.gebco.net/about_us/contributing_data/

GEBCO operates under the joint auspices of the International Hydrographic Organization (IHO) and the Intergovernmental Oceanographic Commission (IOC) of UNESCO

General Bathymetric Chart of the Oceans (GEBCO)
- Global Bathymetric Data Set -



Way to development of surveying technology

GEBCO(<http://www.gebco.net>) consists of an international group of experts who work on the development of a range of bathymetric data sets and data products with the aim of providing the most authoritative publicly-available bathymetry for the world's oceans

GEBCO Digital Atlas **What is the IHO-IOC GEBCO Cook Book?**


How many people used the GEBCO's data? **How to apply GEBCO's products to survey?**

How to contribute your data for GEBCO?

If you would like to contribute bathymetric data to GEBCO or make GEBCO aware of publicly-available data sets that we can use to improve our grids, then in the first instance please contact Pauline Weatherall (paw@bodc.ac.uk) – GEBCO Digital Atlas Manager
Find out more information from : https://www.gebco.net/about_us/contributing_data/

GEBCO operates under the joint auspices of the International Hydrographic Organization (IHO) and the Intergovernmental Oceanographic Commission (IOC) of UNESCO

General Bathymetric Chart of the Oceans (GEBCO)
- Global Bathymetric Data Set -



Do you need global bathymetry data & digital atlas?

GEBCO(<http://www.gebco.net>) consists of an international group of experts who work on the development of a range of bathymetric data sets and data products with the aim of providing the most authoritative publicly-available bathymetry for the world's oceans

Global gridded bathymetry data **GEBCO Digital Atlas**

It is very difficult to product official bathymetry data **How to apply GEBCO's products?**


Importance and necessity of bathymetry data

How to contribute your data for GEBCO?

If you would like to contribute bathymetric data to GEBCO or make GEBCO aware of publicly-available data sets that we can use to improve our grids, then in the first instance please contact Pauline Weatherall (paw@bodc.ac.uk) – GEBCO Digital Atlas Manager
Find out more information from : https://www.gebco.net/about_us/contributing_data/

GEBCO operates under the joint auspices of the International Hydrographic Organization (IHO) and the Intergovernmental Oceanographic Commission (IOC) of UNESCO

General Bathymetric Chart of the Oceans (GEBCO)
- Global Bathymetric Data Set -



Change your mind about the ocean

GEBCO(<http://www.gebco.net>) consists of an international group of experts who work on the development of a range of bathymetric data sets and data products with the aim of providing the most authoritative publicly-available bathymetry for the world's oceans

Global gridded bathymetry data **Gazetteer of Undersea Feature Names**

Add detail to the nautical chart **Save the environment through nautical chart**

How to contribute your data for GEBCO?

If you would like to contribute bathymetric data to GEBCO or make GEBCO aware of publicly-available data sets that we can use to improve our grids, then in the first instance please contact Pauline Weatherall (paw@bodc.ac.uk) – GEBCO Digital Atlas Manager
Find out more information from : https://www.gebco.net/about_us/contributing_data/

GEBCO operates under the joint auspices of the International Hydrographic Organization (IHO) and the Intergovernmental Oceanographic Commission (IOC) of UNESCO

Thank you!