



PÉTROLE



GAZ



ÉLECTRICITÉ



HYDROGÈNE



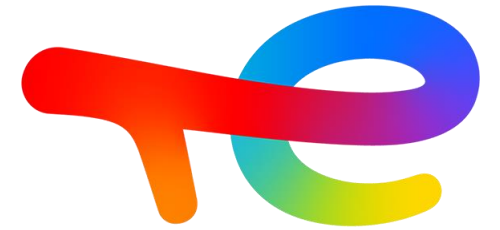
BIOMASSE



ÉOLIEN



SOLAIRE



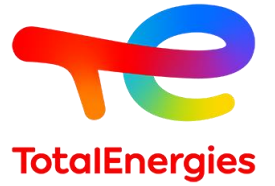
TotalEnergies

Données océanographiques : contribution TotalEnergies à la communauté internationale

Séminaire Aristote: Données de la recherche,
Nature, Cultures & Valeurs – 18/10/2023

Eric Cauquil

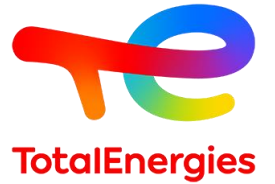
Données océanographiques : contribution TotalEnergies à la communauté internationale



- The **SIMORC** project
- The **GBIF** network
- The **SERPENT** project
- The **OCEAN DECADE** framework

The SIMORC project

(System of Industry Metocean data for the Offshore and Research Communities)



SIMORC was first launched as initiative with partners being MARIS, IOGP (representing 3 operators), BODC and UNESCO. It was funded both by the EU and IOGP with the following objectives:

1. To create a **central index and database of past metocean datasets** collected globally by the oil and gas industry

2. To standardize data quality control, data format, storage and retrieval of these industry metocean datasets **for use by industry partners and scientific users**

3. To define and establish arrangements for **use, update and long-term operation of the SIMORC facility** beyond the project period

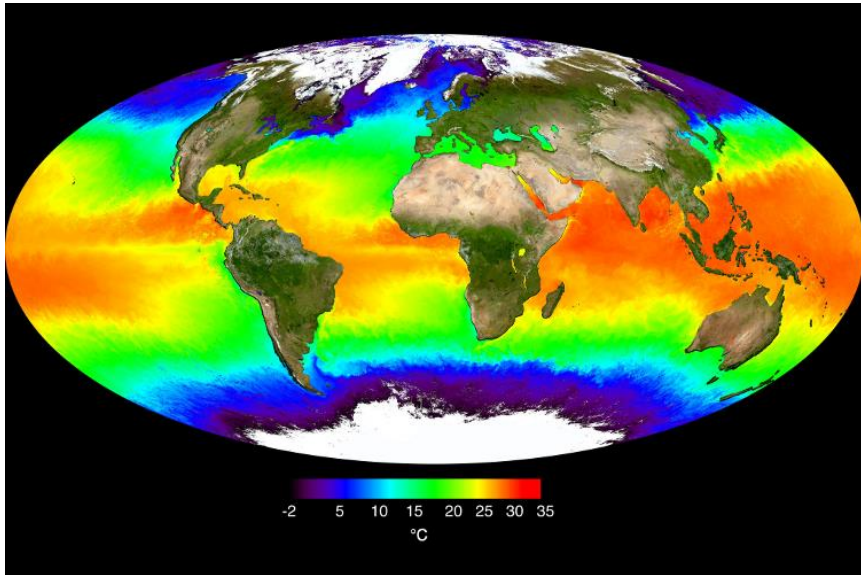
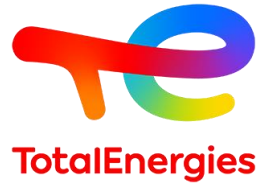
4. To promote and disseminate the SIMORC facility in both the oil and gas industry and **scientific communities** to achieve an increasing number of contributing parties and users



In 2016 the service was discontinued by IOGP due to lack of funds from 2 operators. **TotalEnergies** decided to contract directly both Maris and BODC to keep the service. It has continued ever since to include datasets from permanent monitoring systems as well as surveys.

The SIMORC project

(System of Industry Metocean data for the Offshore and Research Communities)



PARTNERS

The SIMORC project is executed by the following partners:



Mariene Informatie Service "MARIS" BV (MARIS)

Internet: www.maris.nl



International Association of Oil & Gas Producers (IOGP)

Internet: <http://www.iogp.org>



British Oceanographic Data Centre (BODC)

Internet: www.bodc.ac.uk



Intergovernmental Oceanographic Commission of UNESCO (IOC-IODE)

Internet: ioc.unesco.org

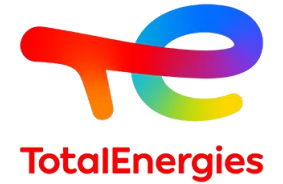
ADVISORY BOARD :

Furthermore the SIMORC project is joined by an Advisory Board, representing key user communities of the SIMORC service. These encompass representatives of:

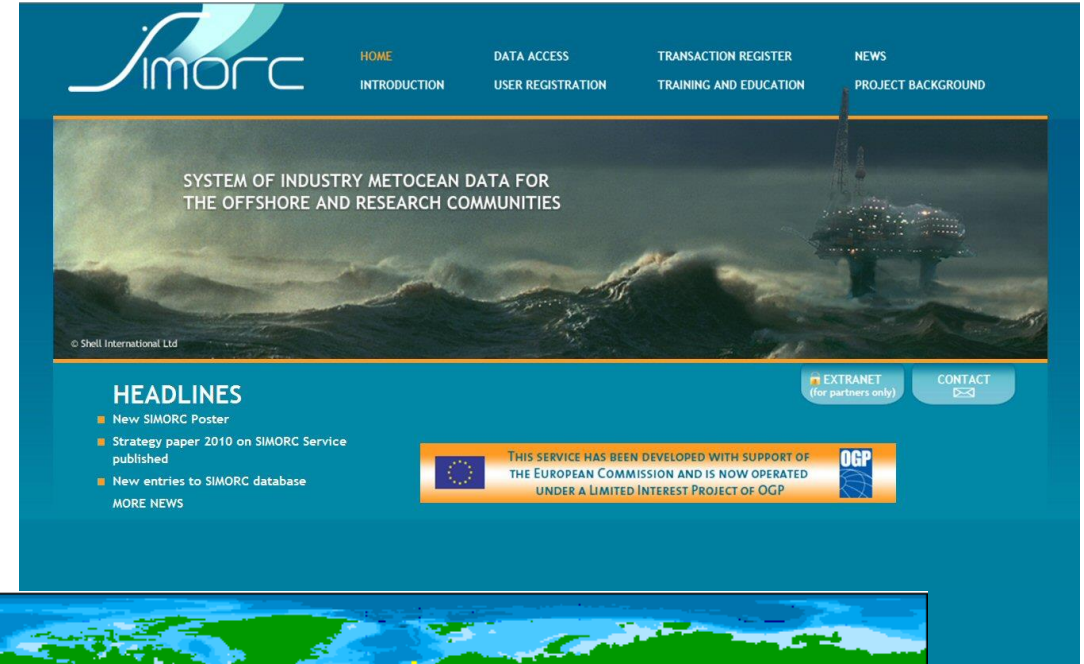
- EuroGOOS - European Association of Agencies to further the goals of the Global Ocean Observing System
- Eurogif - European oil and gas innovation forum
- MFSTEP – Mediterranean Forecasting System Towards Environmental Predictions
- EurOcean – European Centre for Information on Marine Science and Technology
- MerSea project - Marine Environment and Security for the European Area
- UK Met Office
- NOCS - National Oceanography Centre, Southampton

The SIMORC project

(System of Industry Metocean data for the Offshore and Research Communities)



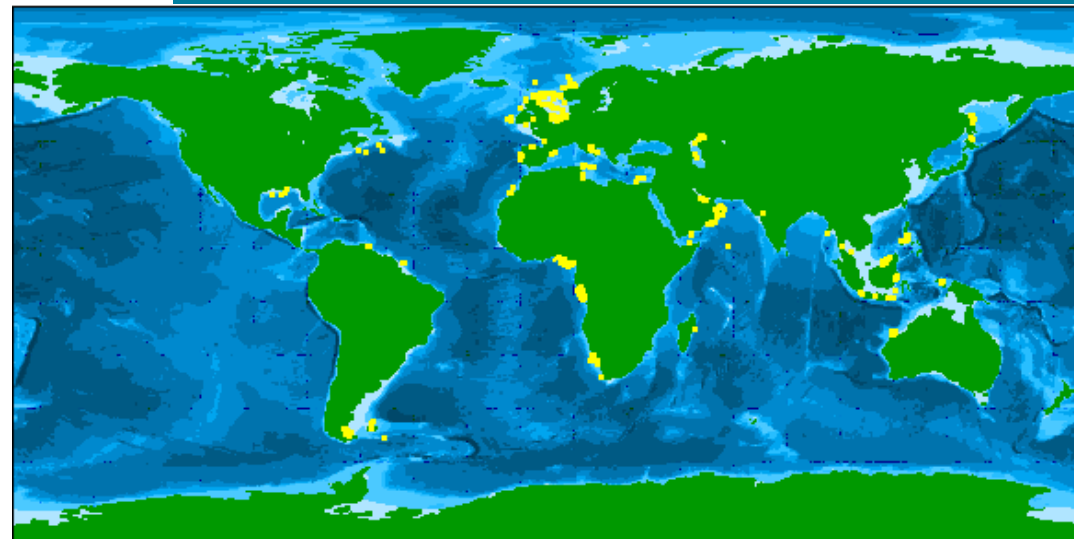
- Searching and browsing in the SIMORC is a public internet service
- Data sets and related publications are managed by SIMORC in a secure domain behind a firewall and measures have been taken to prevent unwanted access
- Ordering of data sets and delivery by downloading of data sets can only be done by registered users and requires a valid User License Agreement



	Scientific Users	Non-Scientific Users
Data sets labelled: LI = Available under licence	Direct access	Request forwarded to owner
Data sets labelled: RS = Restricted	Request forwarded to owner	Request forwarded to owner

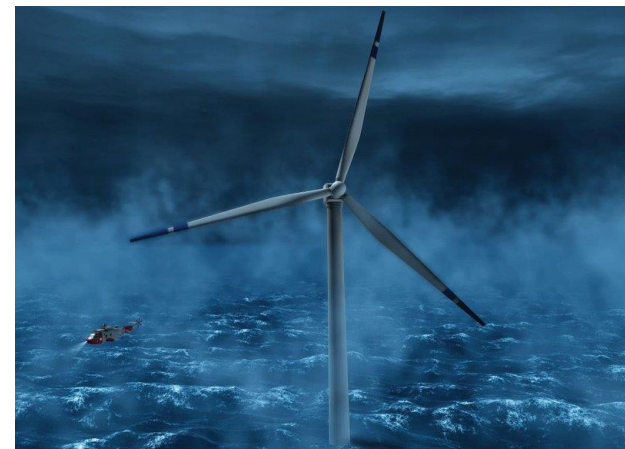
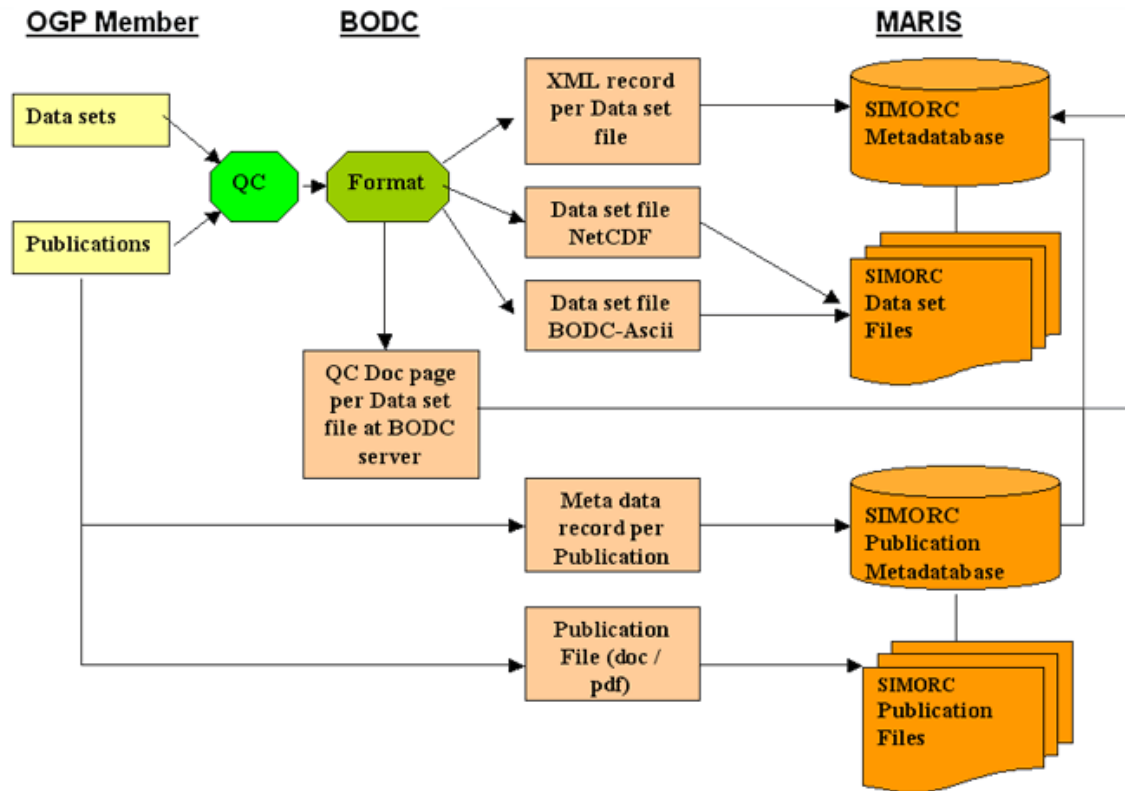
- Registered staff of data owners have privileged access to their own data sets

WWW.SIMORC.ORG



The SIMORC project

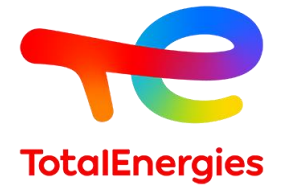
(System of Industry Metocean data for the Offshore and Research Communities)



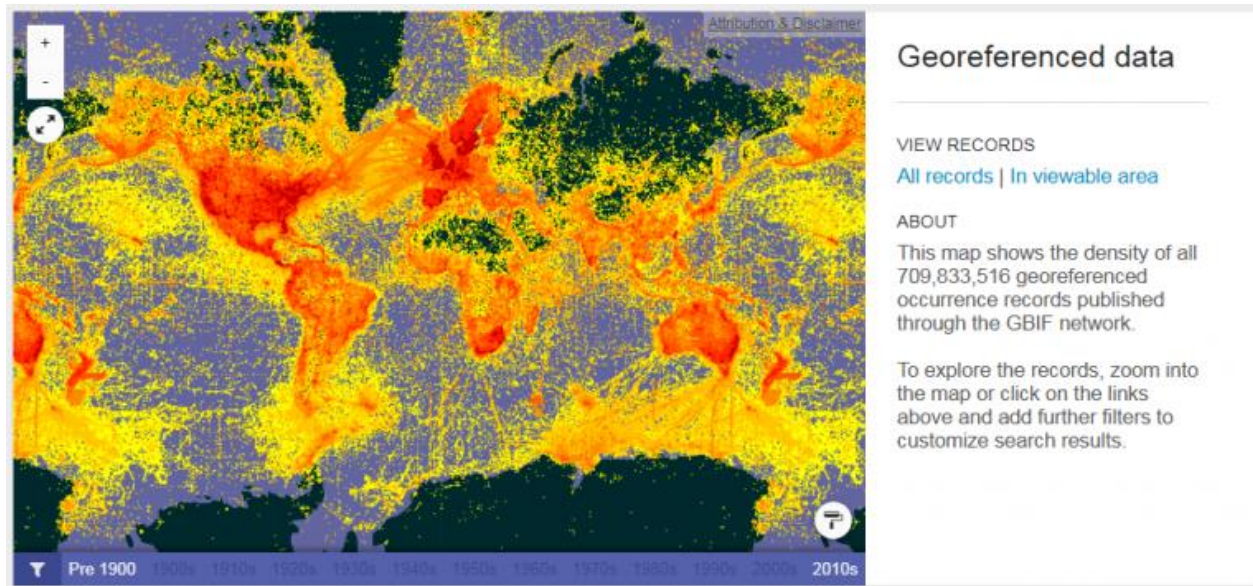
SIMORC database covers today more than **13,000 data sets** from TotalEnergies representing **3,000 years** of observations of winds, waves, currents, sealevels, air and sea temperatures, etc...

The GBIF network

(Global Biodiversity Information Facility)



GBIF is an international network and data infrastructure funded by the world's governments and aimed at providing anyone, anywhere, **open access to data about all types of life on Earth**



Global Biodiversity Information Facility

Free and Open Access to Biodiversity Data

507,489,987 OCCURRENCES	1,454,694 SPECIES	15,327 DATASETS	626 DATA PUBLISHERS
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Sharing biodiversity data for re-use

- [Learn about GBIF](#)
- [Publish your data through GBIF](#)
- [Technical infrastructure](#)

Providing evidence for research and decisions

- [Using data through GBIF](#)
- [Enabling biodiversity science](#)
- [Supporting global targets](#)

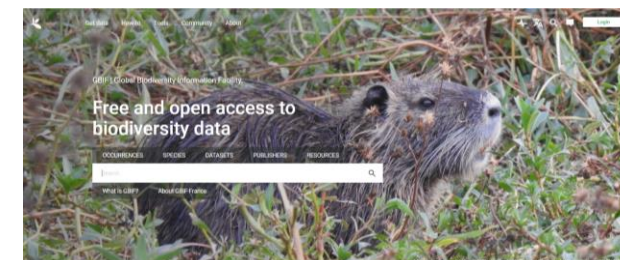
Collaborating as a global community

- [Current Participants](#)
- [How GBIF is funded](#)
- [Enhancing capacity](#)

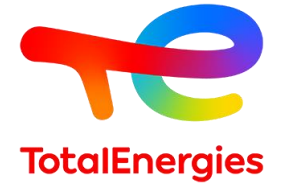
➤ Network of government, organizations and private actors enabling biodiversity data publication and sharing worldwide for researchers and citizens

➤ Global scale data infrastructure for the natural world

7 | ➤ Allows for captured data to be organized and standardized



The GBIF network (Global Biodiversity Information Facility)



TotalEnergies biodiversity ambition...

- 4th pillar of the ambition: promoting biodiversity



- Biodiversity Data Sharing Commitment: 5 datasets/year
- Lots of biodiversity data available: EMoS, EBS, ESIA...
- GBIF membership



Our Biodiversity Data Sharing Commitment

TotalEnergies' ambition to become the **responsible energy major** lead the Group to extend its Biodiversity Ambition and Commitments in September 2020¹.

As one of its key actions and standing out amongst its peers, TotalEnergies committed to **promoting the public sharing of its biodiversity data** with the international scientific community, whether collected during project planned environmental studies, monitoring activities and all pre-existing datasets as well.

As such, the Company became a member of the **Global Biodiversity Information Facility (GBIF)**², the leading international biodiversity data sharing public platform.

To operationalize the commitment, a **standard method** has been developed to allow internal stakeholders such as projects, sites and affiliates to share their biodiversity data. Most commonly, biodiversity data can be extracted in studies such as ESIA or EMoS, which are usually carried out by contractors.

The coordinator of the surveys must contribute to the process of biodiversity data sharing as shown in the adjacent workflow. **The coordinator may be either the affiliate's HSE manager or HD/STS/HSE.**

¹ https://totalenergies.com/sites/g/files/mtzq121/files/documents/2021-10/Brochure_biodiversite_EN_BD.pdf
² <https://www.gbif.org/what-is-gbif>
³ <https://www.gbif.org/fr/publisher/728e3362-3063-4a83-a6cf-71d61b50025b>

What is GBIF?

The Global Biodiversity Information Facility is a worldwide network of publicly shared biodiversity data.



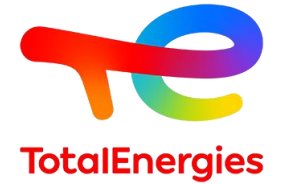
With its global reach and great means, TotalEnergies can become a valuable data provider for the scientific community.

TotalEnergies profile³ has already 14 datasets shared, totaling 22,232 occurrences that have been cited in 57 scientific papers.



The GBIF network

(Global Biodiversity Information Facility)



- TotalEnergies (E&P) is a major contributor to the realization of the yearly **commitment to share 5 datasets a year**

		TotalEnergies
Datasets	11	14
Occurrences	>20,000	>22,000

- Each type of data is stored in a different stratum depending on data class (*occurrence, sampling event, checklist, metadata*)
- All strata can be filtered and searched for (by: *publisher, continent, species, etc...*)

The image shows two screenshots of the GBIF web interface. The top screenshot displays search results for datasets, with 14 results found. A filter for 'Publisher' is set to 'TotalEnergies'. One dataset is highlighted: 'Benthic Biodiversity Baseline Survey, Block 58, Suriname - 2021 - TotalEnergies E&P Suriname B.V.', which is a 'Sampling event' with 15,891 occurrences and 4 citations. The bottom screenshot shows search results for occurrences, with 22,232 results found. A filter for 'Publisher' is also set to 'TotalEnergies'. The results are displayed in a table with columns for 'Scientific name', 'Country or area', and 'Coordinates'. The table lists several species, all from France, including *Acer campestre* L., *Asparagus officinalis* L., *Poa pratensis* L., *Polygonum aviculare* L., *Potentilla argentea* L., *Potentilla reptans* L., *Prunella vulgaris* L., *Pulicaria dysenterica* (L.) Bernh., *Ranunculus aquatilis* L., and *Ranunculus flammula* L.

The GBIF network

(Global Biodiversity Information Facility)



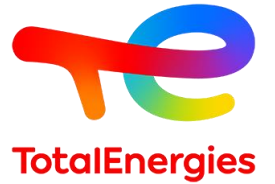
TotalEnergies contribution to GBIF:

- Surinam
- South Africa
- France
- Uganda
- Denmark
- Belgium
- Angola
- Argentina
- Namibia
- Oman



The SERPENT project

(Scientific and Environmental ROV Partnership using Existing Industrial Technology)



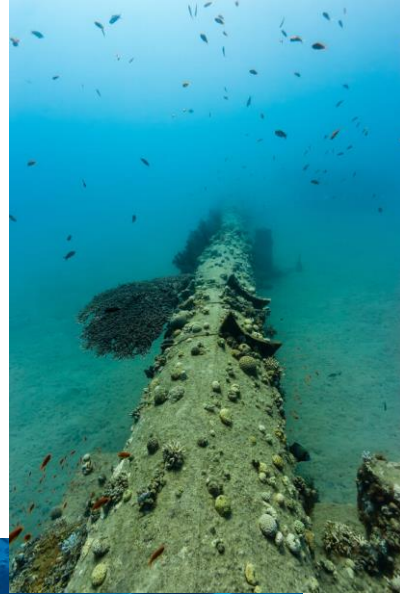
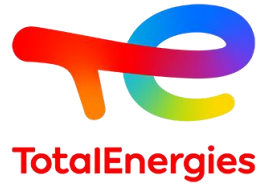
SERPENT is a global project hosted by the DEEPSEAS group, within Ocean Biogeochemistry and Ecosystems (OBE) at the National Oceanography Centre, Southampton (NOCS)







- A collaboration between world leading scientific institutions and companies associated with the oil and gas industry
- The project centres around the **opportunistic use of ROVs** (Remotely Operated Vehicles) in operational settings during periods of stand-by time.
- The project aims to make cutting-edge industrial ROV technology and data more **accessible to the world's science community**, share knowledge and progress deep-sea research
- The programme interacts with global scientists and other organisations to communicate the project to the public, **increasing the awareness of our marine resources**



The SERPENT project

(Scientific and Environmental ROV Partnership using Existing Industrial Technology)



Date	Time	Dive	location	Observation	Photo / video	Sample collected	Sample retained
01/07/2007	23:11:26	1	100 north of main well location	Sculpin (<i>Cottunculus</i>) lying on rock at the end of a video transect		No	No
01/07/2007	23:11:50	1	Approx 90 m north of main well	<i>Gorgonocephalus</i> sp.		No	No
02/07/2007	16:07:30	3	North west of main well – approx 30 m	<i>Chondrocladia</i> (giant club sponge)		No	No
02/07/2007	15:54:07	3	Pilot well	<i>Umbellula</i> sp.		No	No
02/07/2007	15:57:39	3	Pilot well	<i>Umbellula</i> sp.		No	No
02/07/2007	16:09:30	3	North of main well	Cerianthids and ophiuroid		No	No

The OCEAN DECADE framework



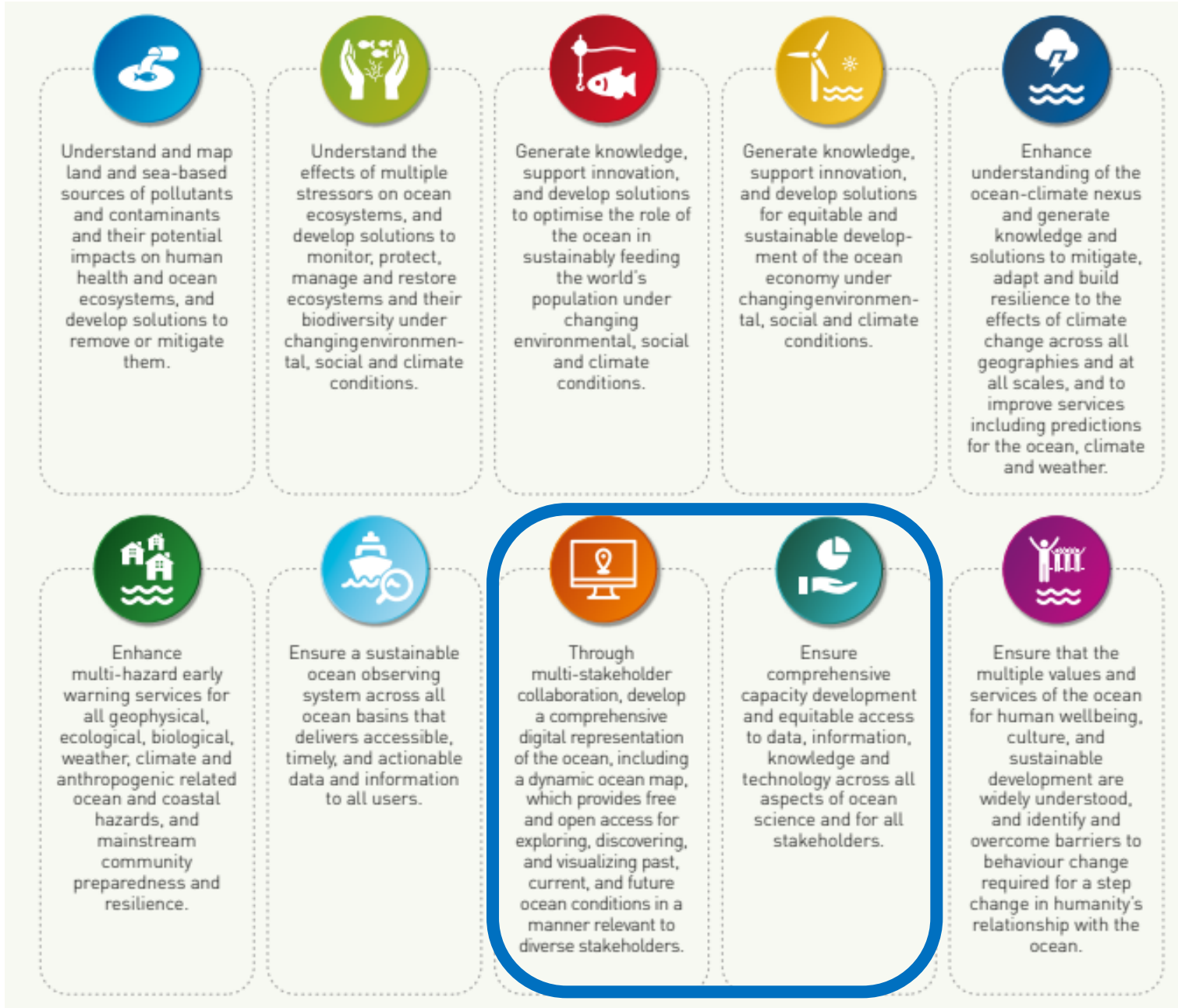
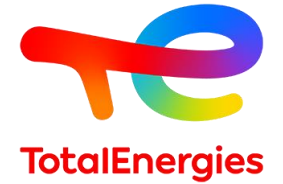
2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development



The mission of the Ocean Decade is *'to catalyse transformative ocean science solutions for sustainable development, connecting people and our ocean'*

1. A clean ocean where sources of pollution are identified and reduced or removed.
2. A healthy and resilient ocean where marine ecosystems are understood, protected, restored and managed.
3. A productive ocean supporting sustainable food supply and a sustainable ocean economy.
4. A predicted ocean where society understands and can respond to changing ocean conditions.
5. A safe ocean where life and livelihoods are protected from ocean-related hazards.
6. **An accessible ocean with open and equitable access to data, information and technology and innovation.**
7. An inspiring and engaging ocean where society understands and values the ocean in relation to human wellbeing and sustainable development.

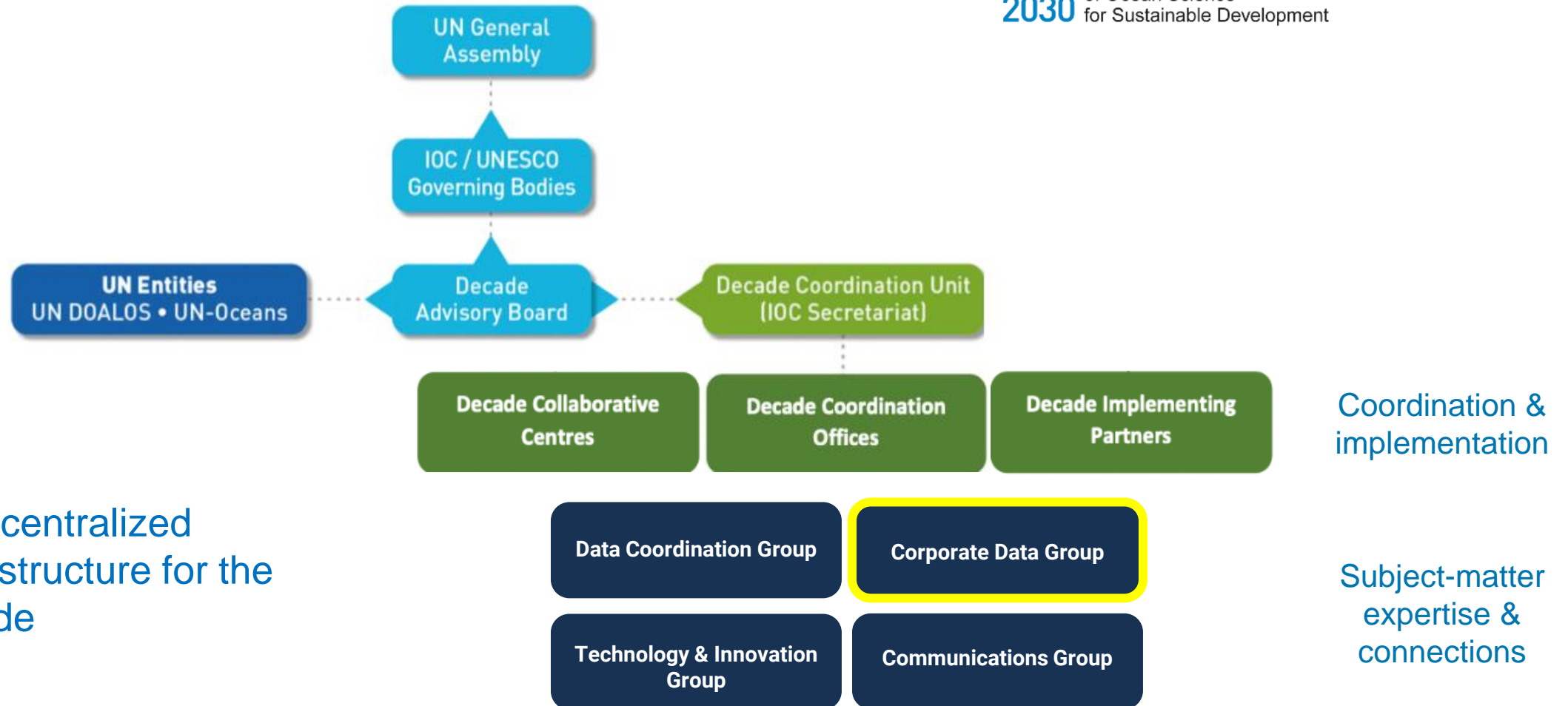
The OCEAN DECADE framework



The OCEAN DECADE framework

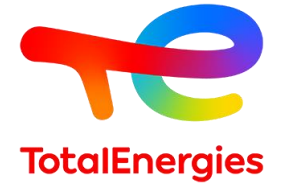


2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development

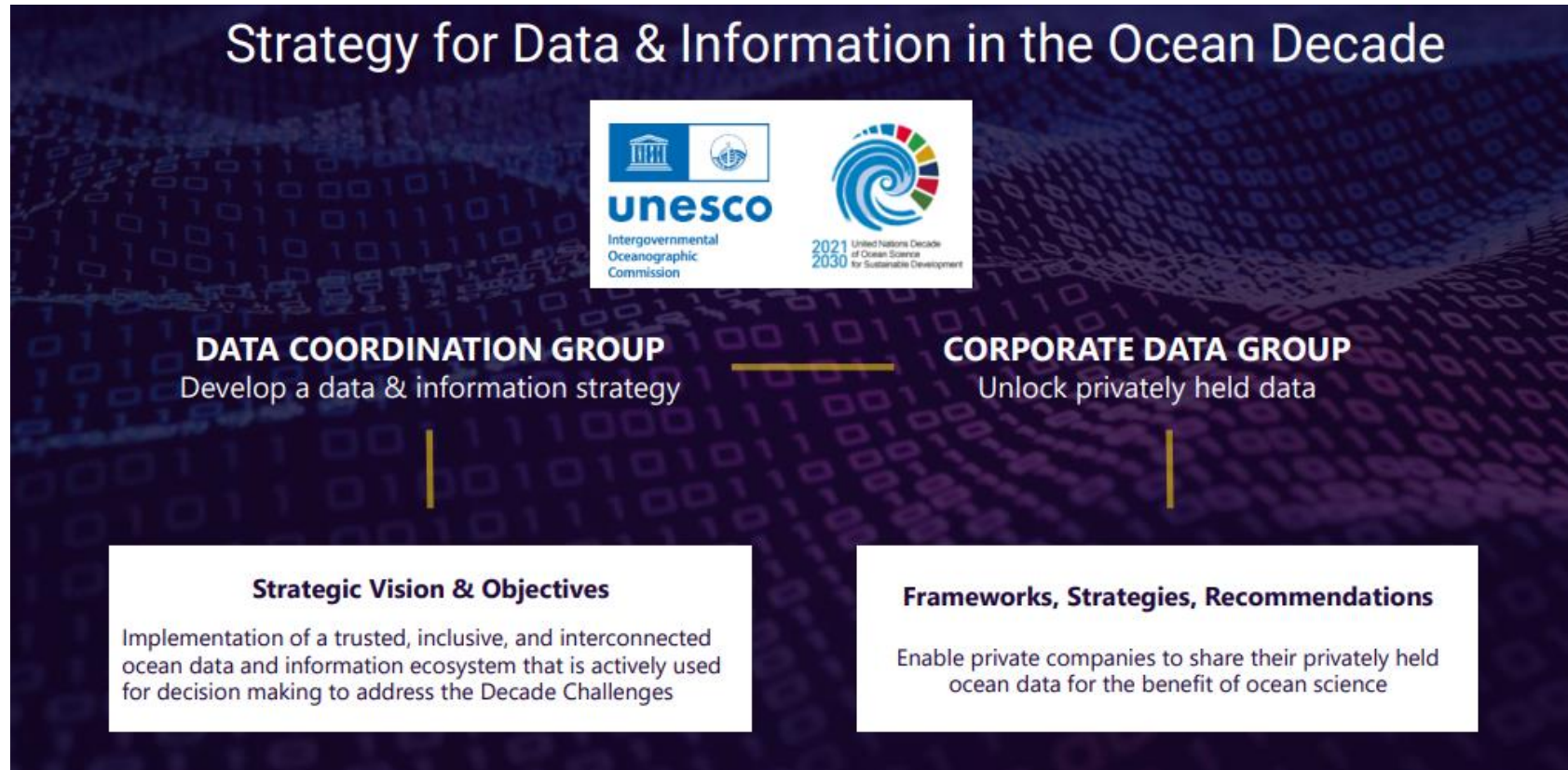


Building a decentralized coordinating structure for the Ocean Decade

The OCEAN DECADE framework

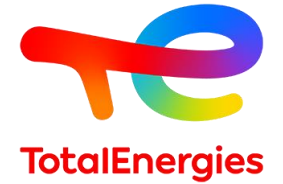


The Corporate Data Group is focused on creating **frameworks and mechanisms to make privately owned ocean science data publicly available** for the benefit of humanity



A trusted, inclusive, and interconnected ocean data and **information ecosystem** that is actively used for decision making to address the Decade Challenges.

The OCEAN DECADE framework – The SEABED 2030 Project

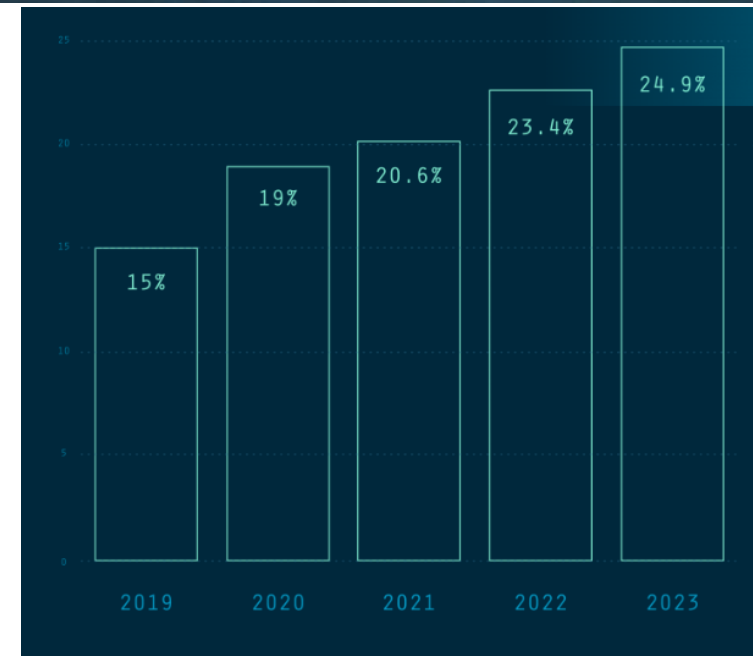


The Nippon Foundation-GEBCO **Seabed 2030** Project is a flagship programme of the United Nation's Ocean Decade of Ocean Science for Sustainable Development (2021-2030)

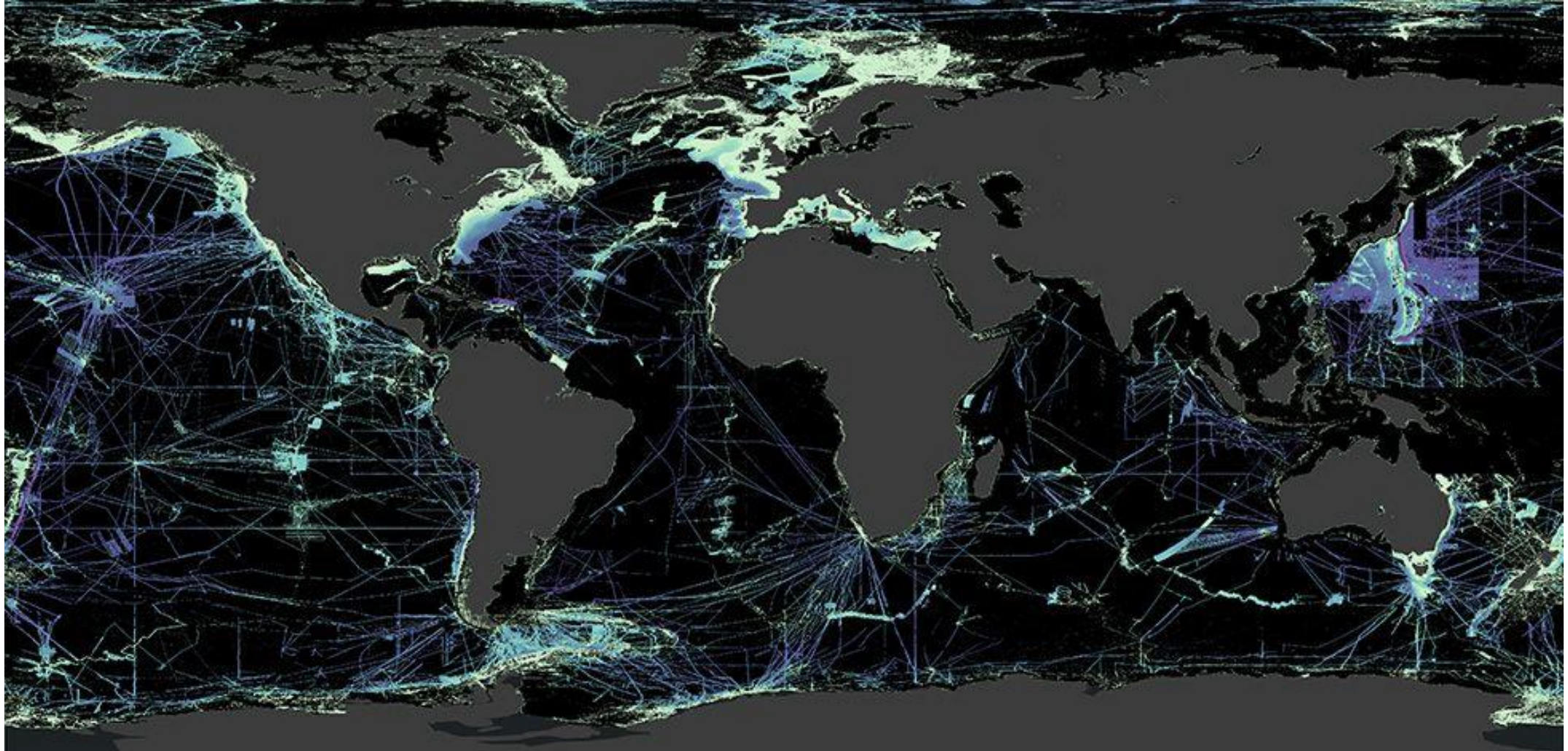
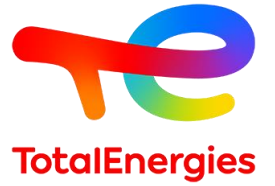
A global community working with partners across industry, governments, research, philanthropy, NGOs, and civil society to achieve **a complete map of the entire seabed by 2030**

Seabed 2030 was launched at the first ever UN Ocean Conference in New York in 2017. Only 6% of the ocean floor was mapped to an adequate resolution when the initiative first started...

24.9% of the ocean floor now mapped



The OCEAN DECADE framework – The SEABED 2030 Project



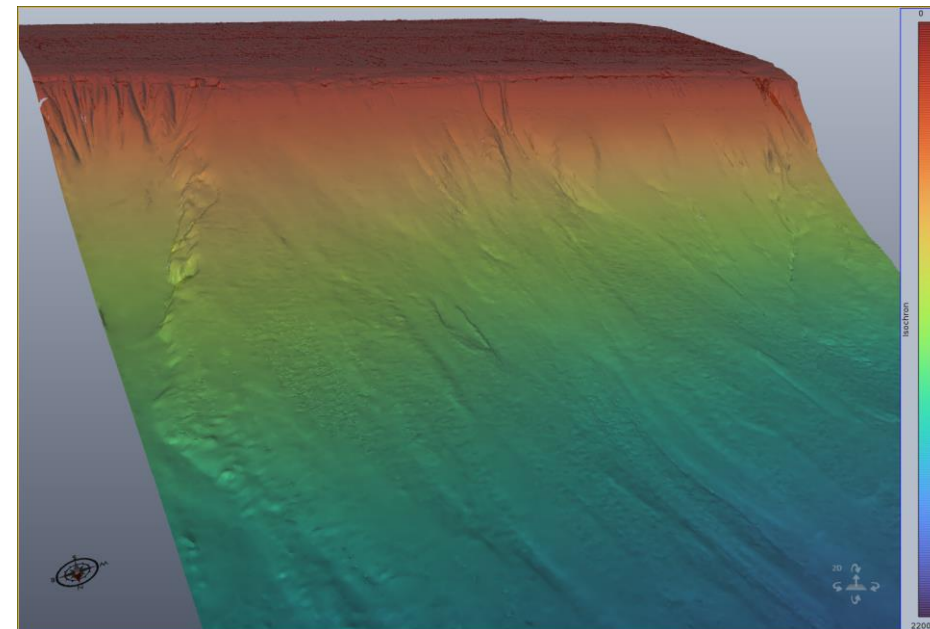
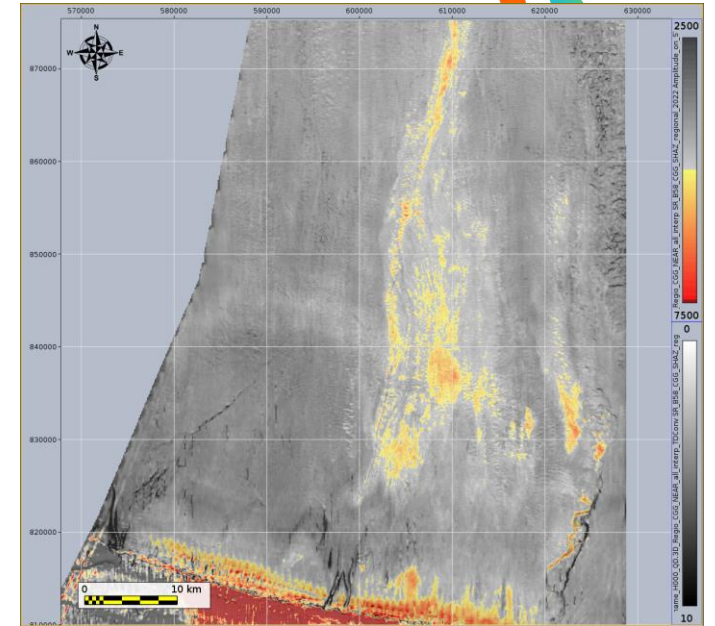
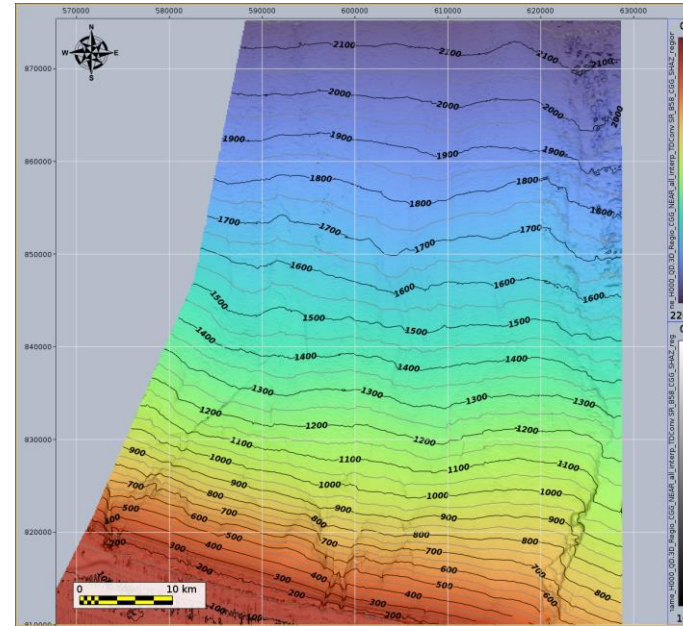
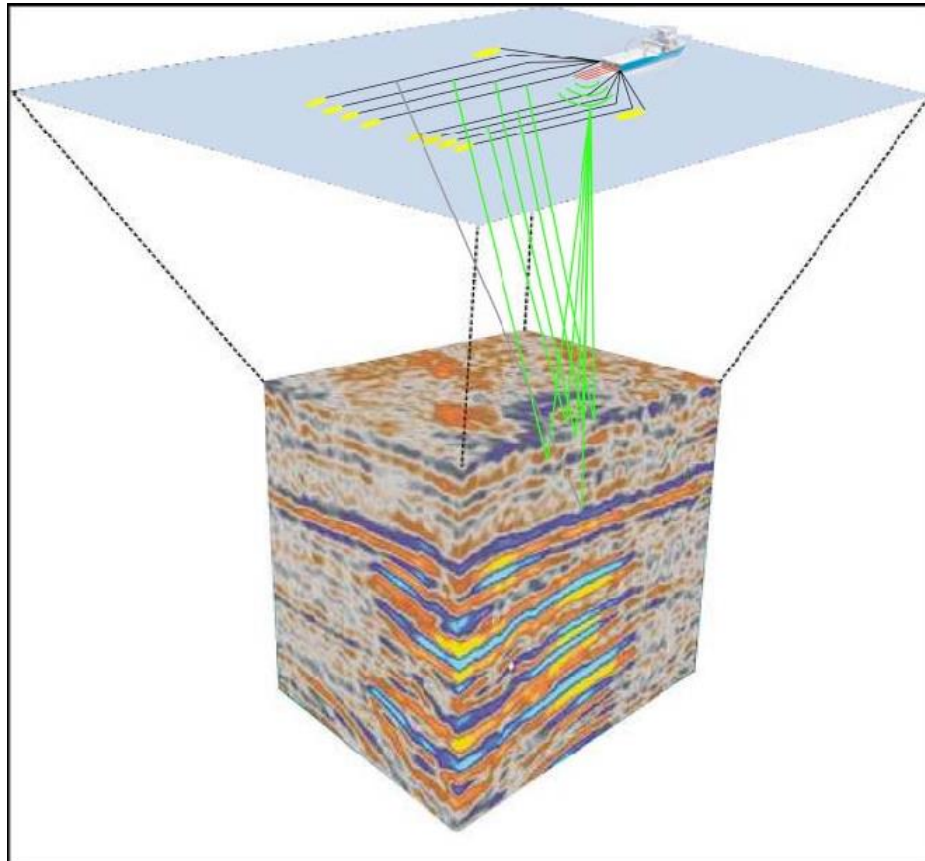
GEBCO 2023 coverage

The OCEAN DECADE framework – The SEABED 2030 Project



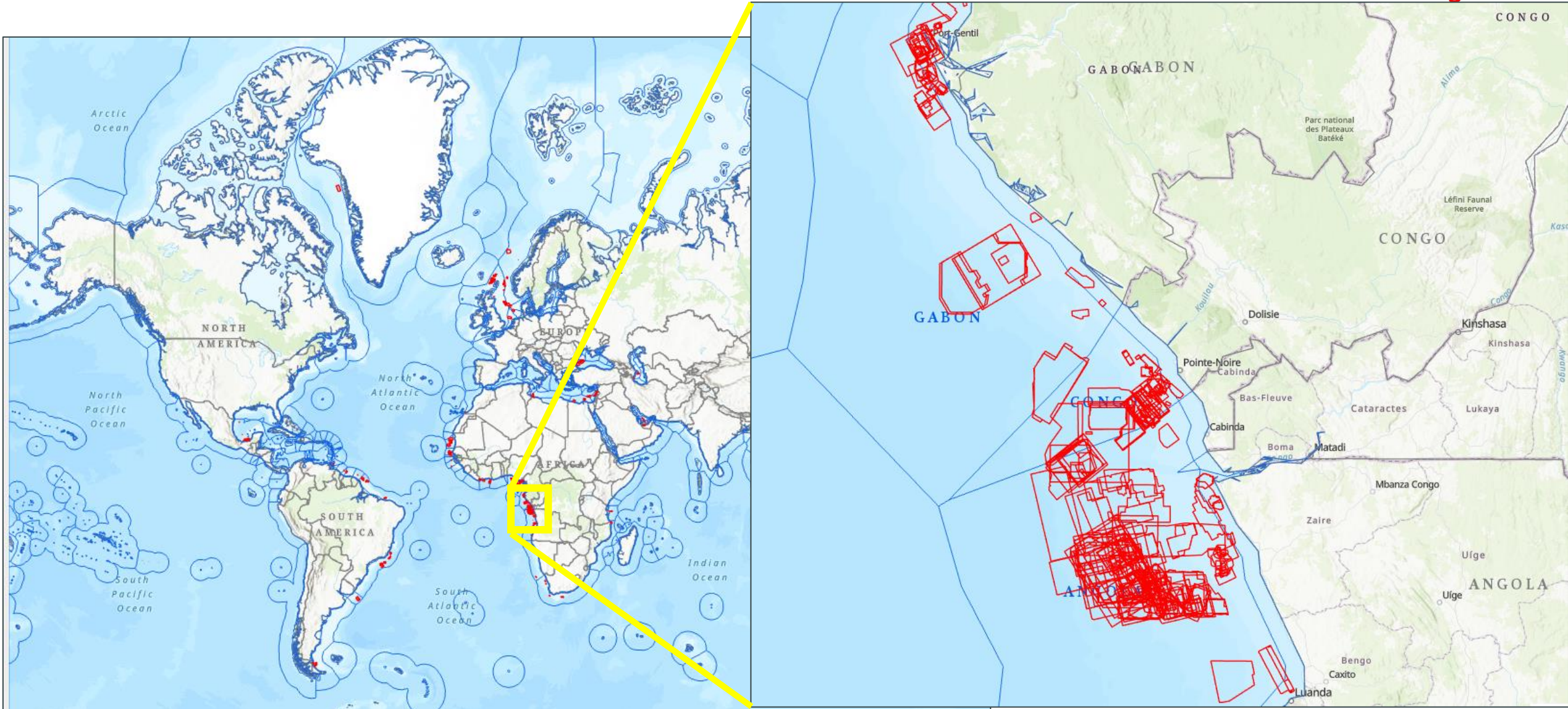
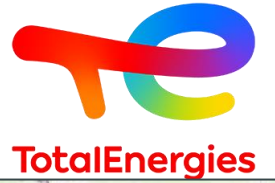
3D exploration seismic (seabed pick)

- Bathymetry
- Seafloor characteristics
- 3D models

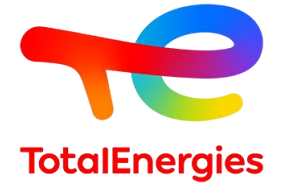


The OCEAN DECADE framework – The SEABED 2030 Project

TotalEnergies contribution to SEABED 2030 (*work in progress*)



The OCEAN DECADE framework – The SEABED 2030 Project



The IOGP support...

Supporting Seabed 2030 in advancing global “High Resolution” Bathymetric coverage.

Desired Benefits

Seabed 2030 seeks to improve high-resolution bathymetric coverage of the oceans supported by UNESCO Ocean Decade Corporate Data Group. Release of industry 3D seabed picks on continental slopes would make a significant improvement in coverage.

Background

- Only just over 20% of the world’s oceans are covered in what the Seabed 2030 initiative consider to be “High Resolution” imagery.
- Seabed 2030 consider “High Resolution” as a grid cell size of 100 x 100m (WD 0-1500m) and 200 x 200m (WD 1500-3000m) – well below what the O&G industry deliver from 3D seismic imagery.
- UNESCO as part of the Decade of the Oceans has formed the Corporate Data Group to seek access to Ocean Data in the broadest sense to support ocean initiatives.

The Current State

- The oil and gas industry has a large amount of 3D data covering continental slope areas that is far in excess of the resolution aims of Seabed 2030.
- In the past industry have mutually released 3D seabed picks to kick start academic understanding of continental slope morphology: e.g. the Western Frontiers Association (1996, UK) and BOEM, GoM Wide Bathymetric model (BOEM, free download).
- This model of sharing could be greatly expanded by industry for the common good.

The Target State

- Agree a common IOGP member data donation mechanism to support release of 3D seabed pick data for inclusion in the improvement of the Seabed 2030 global data model.
- Demonstrate the benefit that the oil and gas industry can bring as a partner in the advance of ocean science.
- Use the model to take back to the UNESCO Corporate Data Group as a proven way forward.

Project proposal

Author Group

Andy Hill, hillaw@bp.com
Geophysical Operations Sub-committee

2023 Targets

1. Get Support from Geomatics Committee members to move forward.
2. Form a Working Group to formulate an approach.
3. Provide guidance back to Geomatics Committee on a request to IOGP and IAGC members.
4. Identify test countries for demonstration of potential quick wins to Seabed 2030.
5. Agree work for delivery in 2024.

Workplan

Action/Milestone	Who	When	Status
Gain initial Geomatics Committee Support for initiative	AWH/EC Lead	Q2 2023	
Define Workgroup members from IOGP and IAGC	AWH/EC, Lead	Q2 2023	
Hold first brainstorming Face-to-Face	Wkg Gp	Q3 2023	
Technical alignment with Seabed 2030 and UNESCO	UNESCO Gp Mbrs	Q3 2023	
Identify 3x Countries as Tests	Wkg Gp	Q4 2024	
Revert to Geomatics Committee and agree 2024 workplan	AWH/EC Lead	Q4 2024	

Required resource

- **Andy Hill (bp) – Co-Chair**
- A.N. Other (CGG)
- E.N. Andre (Equinor)
- A.N. Other (PGS)
- A.N. Other (Schlumberger)
- A.N. Other (Shell)
- **Eric Cauquil (TotalEnergies) – Co-Chair**



- **TotalEnergies** recognizes the private sector as an essential partner to transform sustainable ocean management and move from science to action
- Through different initiatives, **TotalEnergies is committed** to share geo-environmental data with international scientific communities
- Protocols need to be elaborated ensuring a good platform for progress in unlocking privately held ocean data, acknowledging barriers and challenges

To be noted:

➤ The Ocean Decade Conference in Barcelona in April 2024

➤ Digital Twins of the Ocean (DITTO) <https://ditto-oceandecade.org/>

DITTO will enable users to address "What if" questions based on shared data, models, and knowledge, empowering ocean professionals, citizen scientists, policymakers, and the general public to explore ocean knowledge, data, models, and forecasts.





MERCI DE VOTRE ATTENTION