Our Vision
By 2030 we will have worldwide cooperation to ensure a sustainably-robust, state-of-the-art global ocean observing system that serves the needs of science and society.

Our Mission
To lead innovation and development of the global ocean observing system; to identify and contribute to the development of the key skills, capabilities, and capacitiesneeded to achieve the vision; to work with governments, foundations, and industry, to articulate the benefits to society and to ensure meaningful funding to build and sustain the system.

Our Benefits
- To provide a framework enabling emergent new knowledge and understanding through sustained observations and data sharing.
- To support and develop the skills and capabilities needed to use the new data.
- To promote international cooperation and leadership of the ocean observing system.
- To serve as a platform for the engagement of all stakeholders, including governments, foundations, and industry.
- To increase public awareness of the importance of the ocean and its role in our lives.

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POGO is a consortium of 115 oceanographic research institutions from 43 countries around the world. Working with the Committee on Earth Observation Satellites (CEOS), the Global Ocean Data Assimilation Experiment (GODAE) OceanView, the Global Ocean Observing System (GOOS) of the Intergovernmental Oceanographic Commission (IOC), and many other partners, POGO leads the “Oceans and Society: Blue Planet” Initiative within the intergovernmental Group on Earth Observations (GEO). POGO also works closely with the Scientific Committee on Oceanic Research (SCOR), particularly on their joint project the “International Quiet Ocean Experiment.”

Why Observe the Global Ocean?
Because of its integral role in the Earth system, the ocean is an intrinsic part of our lives, whether we live on the coast or hundreds of kilometres inland. It is therefore in everyone’s interest that the ocean is monitored, explored and understood and that future changes can be predicted. Sustained, long-term observations have many applications that benefit us all.

Ocean Observations can be used:
- To predict and mitigate the effects of extreme weather events on human societies, our natural and built environments.
- To understand and predict the effects of climate change on our planet, on our economies, on our societies and on the health of our natural ecosystems.
- To support the economic and societal benefits of the ocean, such as tourism, fisheries, shipping, and the extraction of oil and gas.
- To enable the sustainable management of the ocean, including marine protected areas, and to support the conservation of marine biodiversity.
- To monitor the rapid change of the ocean, and to inform global and regional policies.

The Ocean – Source of Life
The ocean contains an estimated one million different species of plants and animals, up to two-thirds of which have yet to be named and described.

1 Million Species

Biodiversity

The ocean supports more than two-thirds of the Earth’s plants and animals, including over 90% of the world’s marine biodiversity. The ocean also provides us with the oxygen we breathe, as marine algae contribute half the oxygen we breathe.

Marine algae contribute half the oxygen we breathe. Without the ocean the prospects for human life on Earth would be much diminished.

Oxygen

The ocean covers more than two-thirds of the Earth’s surface, with an average depth of 3.8 kilometres. This represents over 99% of the biome, the space in which living organisms can exist.

Surface Biome

3.8 km

70%

99%

Climate

By taking up carbon dioxide and absorbing heat, the ocean plays a huge role in regulating our climate and weather patterns. The ocean also stores a significant amount of carbon dioxide, which is released back into the atmosphere when the ocean’s temperature rises.

Storage of carbon dioxide and heat in the climate system over the last 40 years

30%

90%

CO₂ emitted by humans since the beginning of industrialisation

By taking up carbon dioxide, the ocean helps to reduce the amount of CO₂ in the atmosphere, which helps to mitigate the effects of climate change.

Resources

The ocean sustains the world’s economy by providing food, minerals, energy, and a means of transport and recreation. It is also home to many of the world’s largest fish stocks, which are vital for human nutrition.

Food

Minerals

Energy

Transport

Marine resources are a valuable and essential part of our global economy, and it is important to manage them sustainably to ensure their continued availability.

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How can we observe the oceans?

- Localised, low resolution:
  - Conductivity Temperature Depth (CTD) instruments

- Whole water column:
  - Ship-based
  - Cost:
    - to depths of up to 6,000 metres, the water column.

- Global, high resolution:
  - Autonomous Underwater Vehicles (AUV)
    - Argo
    - The AUV ABYSS
      - Autonomous Underwater Vehicles (AUV)

System.

Deep Argo floats are currently remote-sensing observations.

Despite these achievements, particularly in the realm of physical oceanographic and atmospheric

Global Tropical Moored Buoy Array

provides data real time for climate research and forecasting. Major components include:

- The Global and Local Ocean
  - Global Nutrient
    - The Global Pelagic
    - GLOSS
      - ProVal:
        - profiling floats.

Outlook

Gaps and the way forward

Despite these achievements, particularly in the realm of physical oceanographic and atmospheric

Example:

What has already been achieved?

OceanSITES

is a network of long-term,

deep-time, monitoring system consisting of high-frequency temperature and salinity profiles from the surface to the aphotic zone

The GLOSS

is constructed to shift the

PACIFIC OCEAN

ATLANTIC

Photo: E. Crapo, NOAA Corps. (CC BY 2.0)

and

The Global and Local

Ocean

is a network of long-term,

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