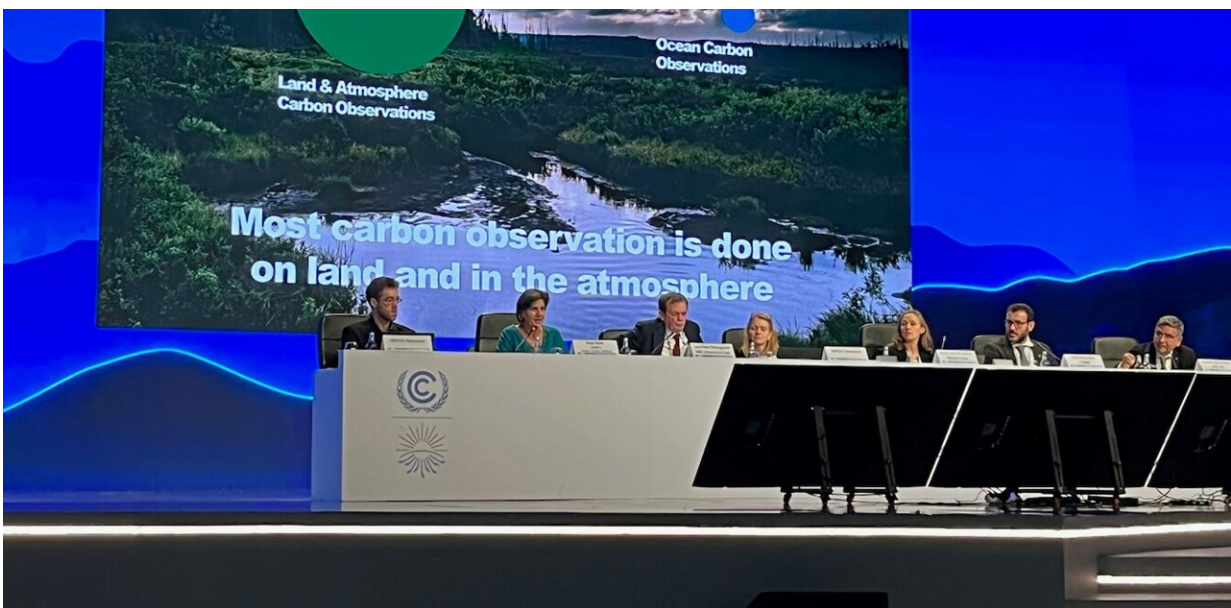


# How COP27 reached a deal that supports better monitoring of oceans to curb climate crisis

November 17 2022, by Anya M. Waite

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Anya Waite (second from left) highlights the critical role of the ocean in regulating our climate, and the need to invest in observing oceans that store more than 90 per cent of all carbon, at COP27's Earth Information Day event. Credit: The Global Ocean Observing System, Author provided

It was 1 a.m. on Nov. 12, in a crowded meeting room on the outskirts of the [COP27 climate conference](#) complex in Sharm El-Sheikh, Egypt. As co-chair of the [Global Ocean Observing System](#) (GOOS), I joined

representatives from nations around the world as they inched toward an agreement on how to observe the changing atmosphere, land and ocean more comprehensively to ensure the world can reach its climate targets.

Tabled by the representatives of the [United Nations Framework Convention on Climate Change](#) (UNFCCC) and the World Meteorological Organization, the agreement would help improve and support the observation of the global climate system, including the oceans that control the climate.

The nations were prepared for these negotiations after COP27's [Earth Information Day](#) event, which I moderated, but there was one hold up: The differences with a handful of nations for whom observation implied scrutiny on hard-to-manage emissions imposed by nations that caused most of the climate damage. It was frustratingly unclear whether the global goal would pass. The UNFCCC negotiators returned to the drawing board—working into the wee hours.

The following day, they emerged in weary triumph with an agreement on global observation. Soon after the agreement was completed, they turned their attention to the challenges of the next week's COP agreements. Such unseen and often unglamorous efforts underpin the critical work to move nations to agreement at COP27.

## **The carbon context**

The [global ocean](#) holds 50 times more carbon than the atmosphere and absorbs more carbon than all the rainforests on Earth. To date, the [ocean has absorbed 40 percent of fossil fuel emissions](#) through [chemical processes](#) collectively known as the ocean carbon pump.

Despite having buffered human carbon emissions since the onset of global warming, the process by which oceans absorb carbon is changing

at an uncertain rate. Coastal [blue carbon ecosystems such as seagrasses and mangroves lock up critical carbon](#) stores in sediments and conserve a rich biodiversity.

But the largest carbon sink of all is on the [high seas](#)—the deep blue carbon embedded in the open ocean as plankton, salts and organic matter. Deep-blue carbon and the associated diverse ecosystems are challenging to observe due to difficulties in terms of access, expensive equipment and the fact that these exist beyond national jurisdictions.

This formal COP agreement provides a strong foundation for nations to act and for policymakers to heed the ocean observation community's urgent appeal for investment in the internationally-linked observation systems that will resolve these problems. But these requests need to be focused and united—and the science community is anything but that.

## **Bridging the science and policy gap**

Scientists, more often than not, have to focus on the technical minutiae of their work, even when attending such broad international meetings as COP27, to remain credible in their field. Intergovernmental work being done by groups like the UNFCCC's [Subsidiary Body for Scientific and Technological Advice](#) is, often, invisible to them.

This week at the [Ocean Pavillion at COP27](#), Nigel Topping, the UK's COP26 lead, criticized "the narcissism of small differences" in the climate community, highlighting how researchers, NGOs and even governments, sometimes, fail to achieve consensus for climate action because of minor differences in their perspective.

At COP27, achieving [net-zero emissions is an urgent global necessity](#). The time to act is now, and the private and public sectors, researchers and policymakers must work together toward this goal. Achieving net-

zero within this timeframe will not be possible without a better understanding of [crucial carbon-absorbing mechanisms](#).

Ocean and climate forecasters continue to grapple with increasing uncertainty of climate models. But they can rely on strong frameworks from the intergovernmental institutions like the [Intergovernmental Panel on Climate Change \(IPCC\)](#), which is building the bedrock of climate information through regular global assessments. This relies on the careful compilation of scientific knowledge and a remarkable international consensus process that informs governments and other stakeholders of the climate trajectory.

Internationally, several UN agencies have brought together the work of nations to support and inform global action based on the latest [IPCC analysis](#). The World Meteorological Organization recently launched [a study group](#) that has been working on the development of an international greenhouse gas monitoring system.

The [Global Ocean Observing System](#) (GOOS), led by UNESCO's Intergovernmental Oceanographic Commission, has proposed monitoring programs one of which—the [Ocean Observing Co-Design Program](#)—has highlighted the importance of ocean carbon observation for the global community.

## **Emerging technologies**

Poorly co-ordinated efforts threaten our collective ability to set, track and meet [climate targets](#). They can also hinder the development and scale-up of specific mitigation such as ocean-based [carbon dioxide removal \(CDR\)](#). While using this technology is sometimes controversial, it's critical if we want to follow what the IPCC says is now necessary.

To be credible, CDR must be exceptionally well documented and

carefully rolled out. It must also scale up quickly enough to impact the global climate. These competing demands are already causing tension within the community.

The [London Protocol](#)—one of the first global conventions adopted by the International Maritime Organization in 1975 to protect the [marine environment](#) from human activities—is framing ocean CDR technologies such as [ocean fertilization](#) and [ocean alkalinity enhancement](#).

## **The need for an international climate observatory**

So how do we harness the UN climate frameworks into action? A [carbon or climate observatory](#) could emerge as a first mover for a global observation goal as a mandated observation system under the World Meteorological Organization. It would provide data and measurements to enhance global understanding of oceans' capacity to continue to absorb carbon.

An international climate observatory would require leading nations to communicate, pool and co-ordinate their already substantial investments and expertise. Nations can draw on existing initiatives, such as the international telescopes or research from the International Space Station.

These commitments need to champion the multiple intergovernmental initiatives under the UNFCCC while maintaining a strong dialogue with the burgeoning private sector.

A new conversation is urgently needed to transform [climate action](#)—and the UNFCCC has initiated this conversation at COP27.

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