



# Argo: an essential public service

**Argo floats benefit our societies in multiple ways: from enhancing weather and climate forecasts to retrieving lost cargo or helping the fishing industry.**

Beyond being a revolutionary tool for scientists all around the world, the Argo floats have a tremendous, albeit mostly unrecognized, impact on our societies, and its importance is bound to grow in the near future. “Most of the global population lives near the seashore and will be impacted by sea level rise, coastal flooding and other phenomena caused by climate change,” explains Virginie Thierry, a physical oceanographer at Argo France, a member of Euro-Argo - the European contribution to the international Argo program.

The traditional Argo floats, or Core Argo, help better assess climate change. “With its extensions Deep Argo and Biogeochemical Argo, we’ll be able to go further and accurately diagnose climate change,” she adds. “As a result, we will be able to show people how real climate change is.” With Argo’s dataset, scientists can also initiate accurate climate forecast models. “We’ll know exactly how our oceans moderate global warming and we’ll be able to inform policy makers on the decisions they have to make,” says Virginie Thierry.

“Argo is now essential for all kinds of forecasts, such as seasonal climate forecasting and weather forecasting,” says Susan Wijffels, a physical oceanographer at the Woods Hole Oceanographic Institution (USA) and a co-founder of the Argo program. Historically, weather forecasts were based on satellite data and used only atmospheric models. Today, these models are starting to include an accurate simulation of the active global ocean thanks to the addition of in-situ observations, and Argo’s dataset makes the vast bulk of these observations. Getting this level of accuracy is particularly important to predict extreme events like tropical storms. “One of the ways we’re going to manage climate change is by getting people out of the way of these extreme events as their frequency will get higher and higher,” Susan Wijffels says.

For the senior scientist, ocean observation programs like Argo and their data constitute an enormous wealth. “Better observation means better coastal protection and better protection at sea,” she notes. “This is potentially transferable in savings for insurances of properties and human life.”

Of course, Argo also plays an essential role in oceanography and particularly operational oceanography, that is, the equivalent for the ocean of weather monitoring and forecasting. Operational oceanography is centered around ocean models that help predict the state of our seas. The data they provide are essential for millions of users around the world, such as tourism ships or individuals looking for day-to-day information about their favorite beaches or sailing spots. “In-situ observations like Argo highly improve ocean models’ accuracy by grounding them to reality,” explains Audrey Hasson, Head of the GEO Blue Planet European Office at Mercator Ocean International.

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Mercator Ocean International

Argo’s data on ocean currents for instance are particularly useful to study how things drift at sea. “If you’re trying to manage an oil spill, you want to have a detailed forecast of what the currents are going to do in the next two to three weeks,” she says. “Or if you’re looking for a lost container at sea, you want to be able to backtrack or predict where it might go, and Argo floats help reach this high level of detail.” In-situ ocean observations like Argo, satellite observations and ocean models constitute substantial assets for the fishing industry as well. For instance, they can help guide fishing vessels to fertile zones. This is particularly useful for artisanal fisheries in countries like Bangladesh or Vietnam. “Fishermen consume less fuel as their time at sea can be counted in days instead of weeks”, says Audrey Hasson. “For this profession, less time at sea also means a lesser risk of mortality.” Argo’s data is getting even more accurate thanks to the rise of BGC Argo, a new generation of floats equipped with biogeochemical sensors. These floats help scientists and seafarers better understand our world marine ecosystems, how they are shifting because of climate change, and how dire the impacts are on the resources exploited by the fishing industry.

## THE POSITIVE IMPACTS OF **ARGO FLOATS** ON THE **ENVIRONMENT AND SOCIETY**



Argo floats produce free and open-sourced data



### For weather, climate and ocean prediction

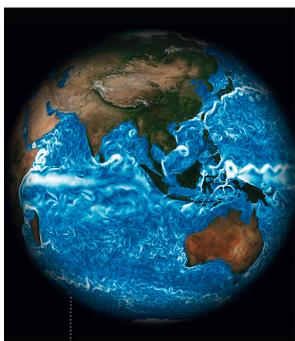


The data are used by operational services:

Argo data improve the accuracy of the ocean forecasts and are critical for developing reliable seasonal to decadal climate predictions. Argo is a game changer in terms of ocean observations.



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### For climate change mitigation



Scientists use these data for societal benefit:

One of Argo’s most important scientific contribution is a huge improvement in the estimation of heat stored by the oceans – key for understanding global warming, rising sea levels and ocean health.



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### Positive impacts on the environment and society

Contribution to 2 of the 17 Sustainable Development Goals (SDGs) adopted by all United Nations Member States in 2015.





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It is one of a series of 10 articles showcasing Euro-Argo and its unique contribution to the international Argo program and the global ocean observing system, and how it is transforming ocean research and our understanding of the ocean.

This article is part of the EU4OceanObs Ocean Observing Awareness Campaign | Part 1: Euro-Argo  
[www.eu4oceanobs.eu/oceanobserving\\_awareness/ocean-observing-awareness-euro-argo](http://www.eu4oceanobs.eu/oceanobserving_awareness/ocean-observing-awareness-euro-argo)



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## Find out more

- [EU4OceanObs Ocean Observing Campaign | Part 1: Euro-Argo](http://www.eu4oceanobs.eu/oceanobserving_awareness/ocean-observing-awareness-euro-argo)
- Euro-Argo: [www.euro-argo.eu](http://www.euro-argo.eu)
- Copernicus Marine Service: [marine.copernicus.eu](http://marine.copernicus.eu)
- European Marine Observation and Data Network (EMODnet): [emodnet.ec.europa.eu](http://emodnet.ec.europa.eu)
- Deep Argo: [argo.ucsd.edu/expansion/deep-argo-mission](http://argo.ucsd.edu/expansion/deep-argo-mission)
- Biogeochemical Argo (BGC-Argo): [biogeochemical-argo.org](http://biogeochemical-argo.org)
- European Global Ocean Observing System (EuroGOOS): [eurogoos.eu](http://eurogoos.eu)
- OceanOps: [www.ocean-ops.org](http://www.ocean-ops.org)
- International Argo Program: [argo.ucsd.edu](http://argo.ucsd.edu)
- Global Ocean Observing System (GOOS): [www.goosocean.org](http://www.goosocean.org)
- GEO Blue Planet Initiative: [geoblueplanet.org](http://geoblueplanet.org)
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