



Euro-Argo: A new European Research Infrastructure

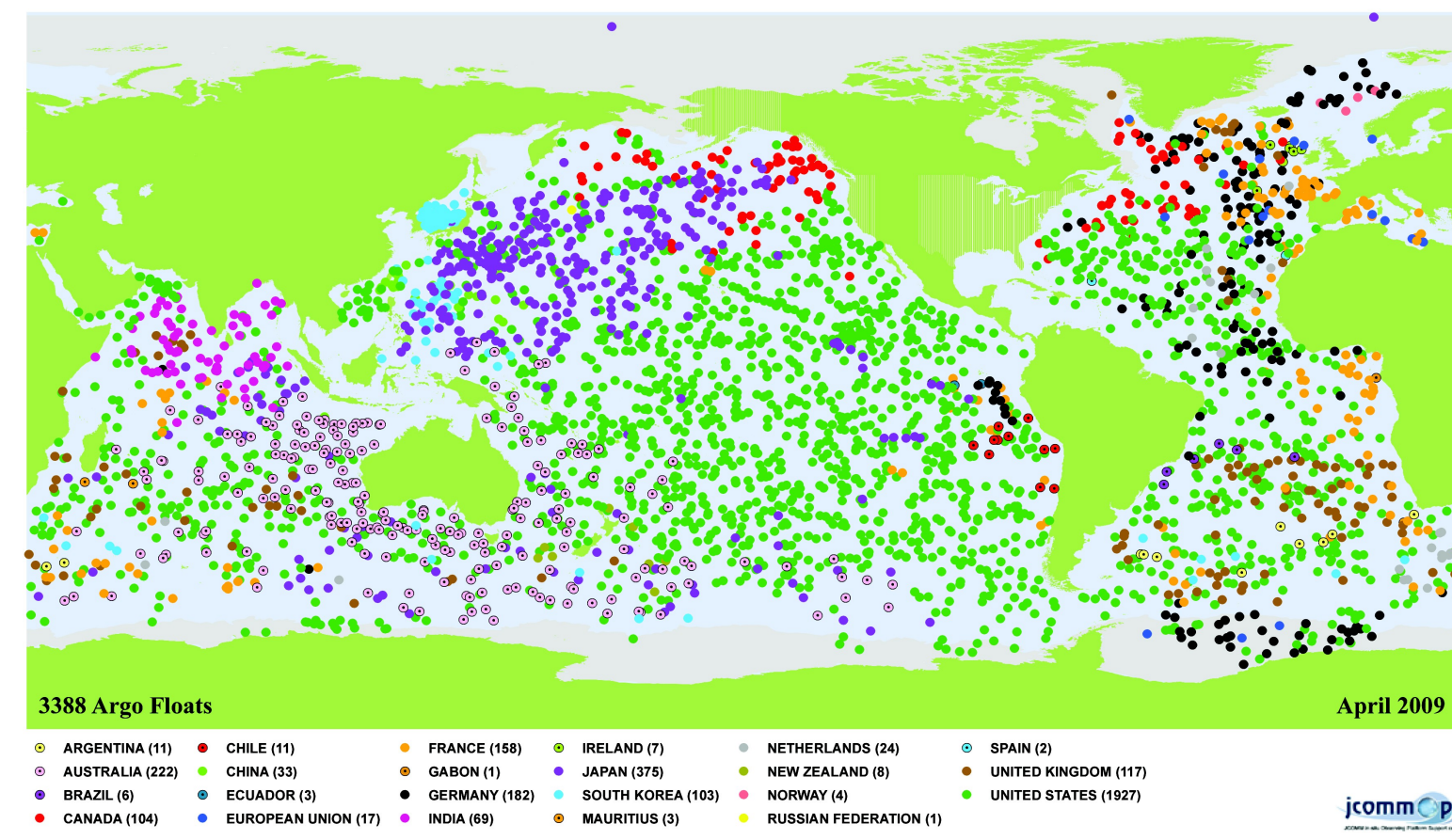
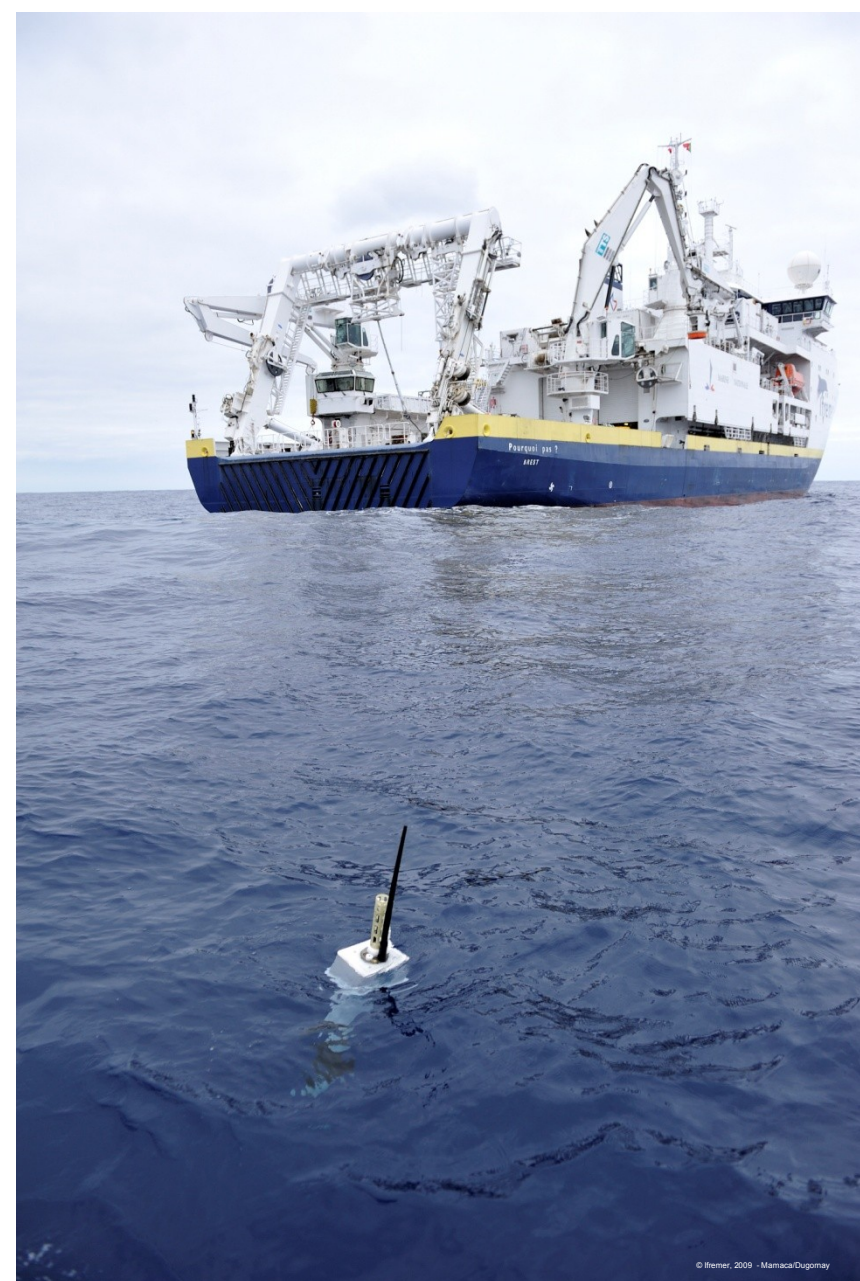
European contribution to a global ocean observatory

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Argo, a global ocean observing system for the 21st century

Understanding and predicting changes in both the atmosphere and ocean are needed to guide international actions, to optimise governments' policies and to shape industrial strategies.



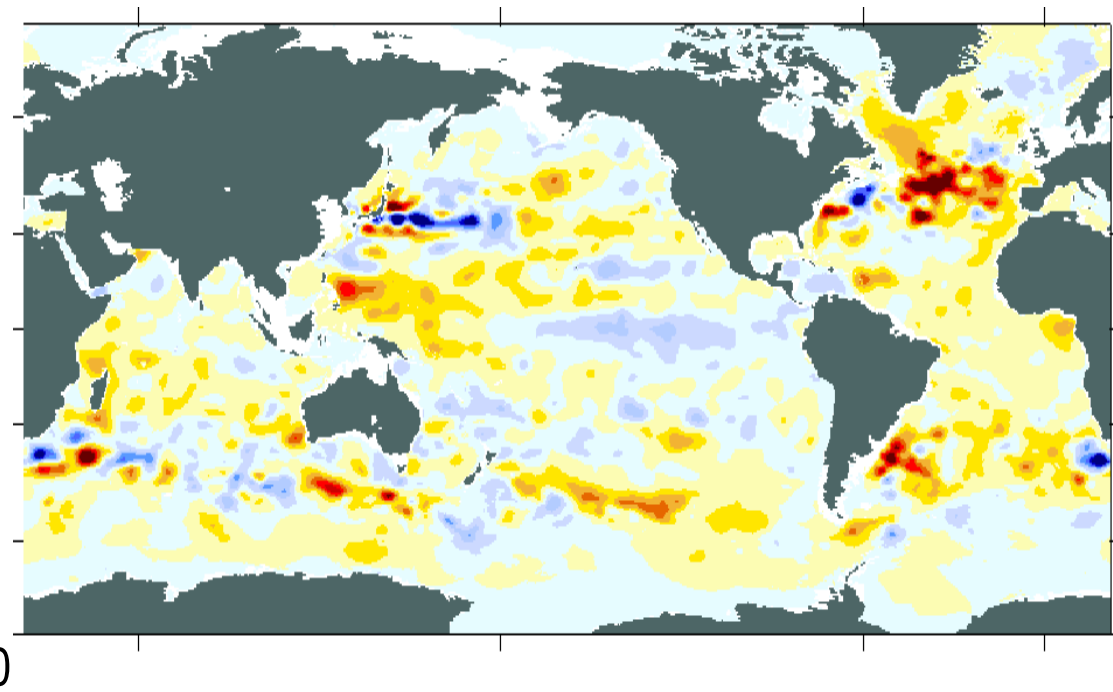
Active Argo floats by country

In November 2007, the international Argo programme reached its initial target of 3,000 profiling floats. These floats measure temperature and salinity throughout the deep global oceans, down to 2,000 metres and deliver data in real time for operational users. This is the first-ever global, in-situ ocean-observing network in the history of oceanography, providing an essential complement to satellite systems.

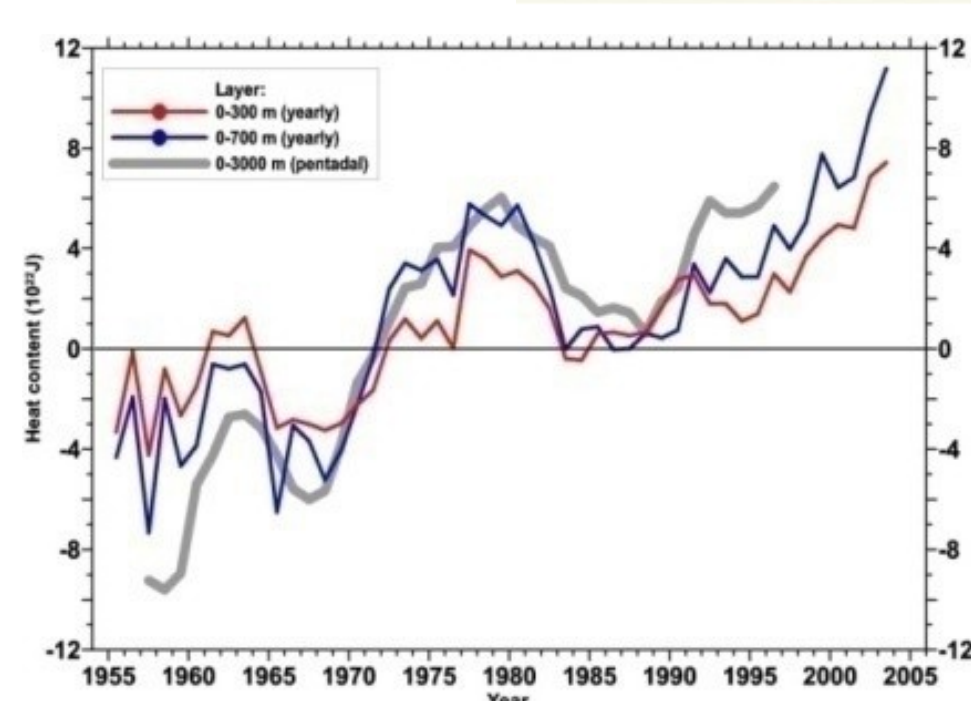
One of Argo's most important contributions so far is a huge improvement in estimations of heat stored by the oceans. Argo has also brought remarkable advances in ocean forecasting and seasonal climate predictions and is giving new insights into hurricane activity.

The science case: Climate change and global warming

The oceans have a fundamental influence on our climate and weather, both of which are affected by changes in the currents and heat content of the ocean. Argo is a unique system to monitor heat and salt transport and storage, ocean circulation and global overturning changes and to understand the ability of the ocean to absorb excess CO₂ from the atmosphere.



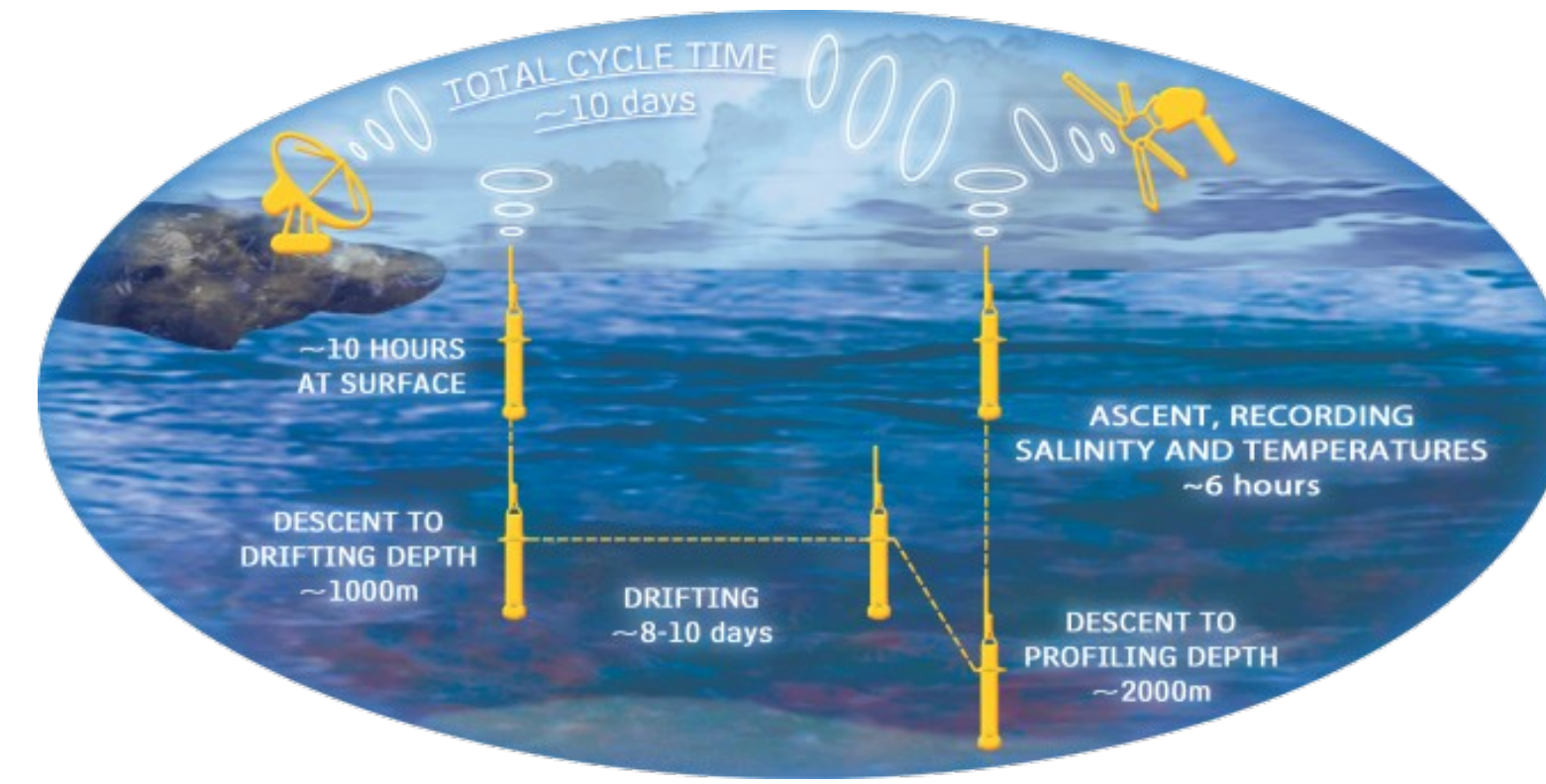
Change in ocean heat content (Watts/m²) from 2003 to 2007 based on Argo observations. On global scales, anomalies are generally positive, except in areas of strong interannual fluctuations.



Over the past 50 years, the oceans have absorbed more than 80% of the Earth warming due to the anthropogenic increase of greenhouse gas concentration.

The Euro-Argo research infrastructure

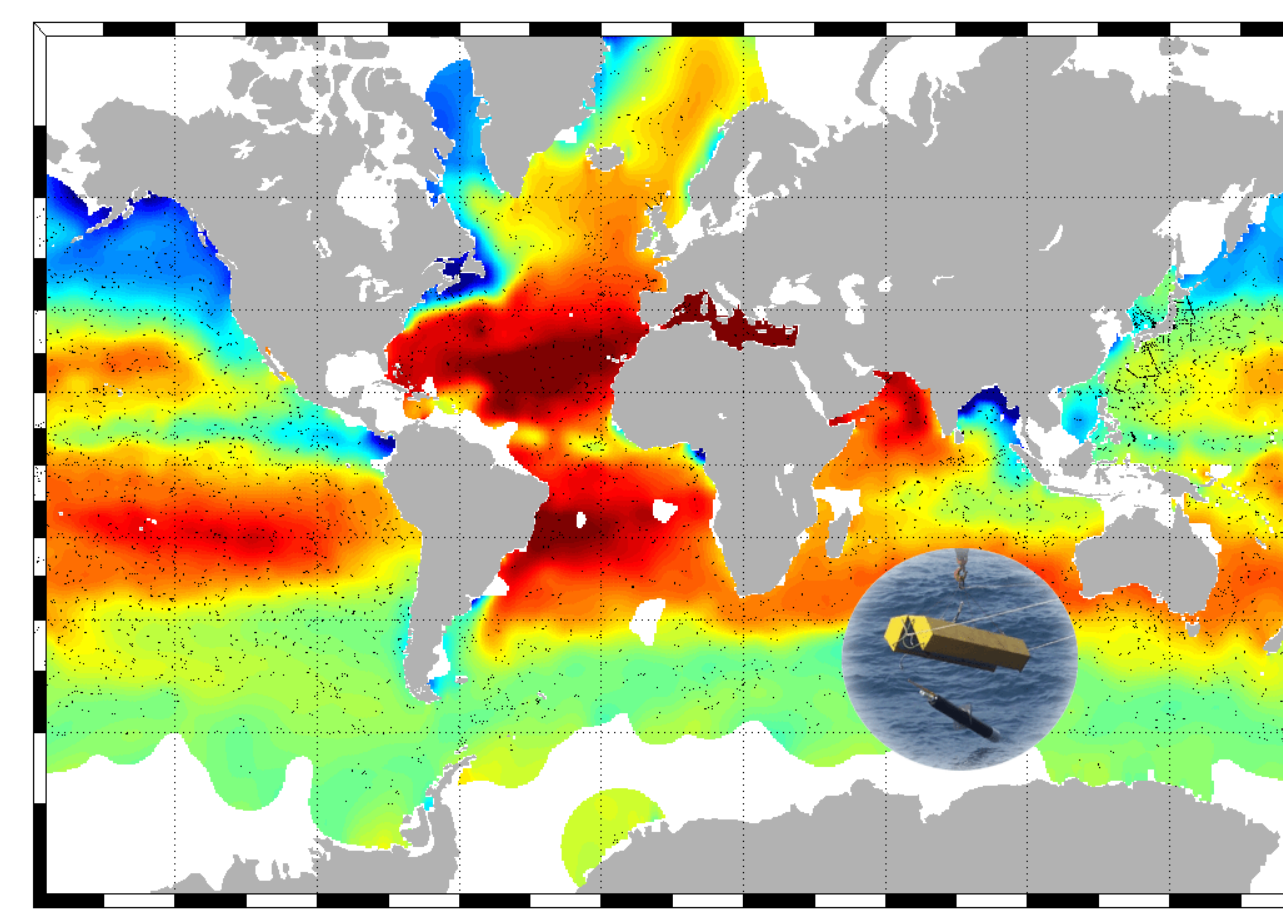
Maintaining the array's size and global coverage in the coming decades is the next challenge for Argo. Euro-Argo will consolidate the European component of the global network. Specific European interests also require increased sampling in some regional seas. Overall, the Euro-Argo infrastructure should comprise 800 floats in operation at any given time. The maintenance of such an array would require Europe to deploy about 250 floats per year.



An Argo float mission cycle

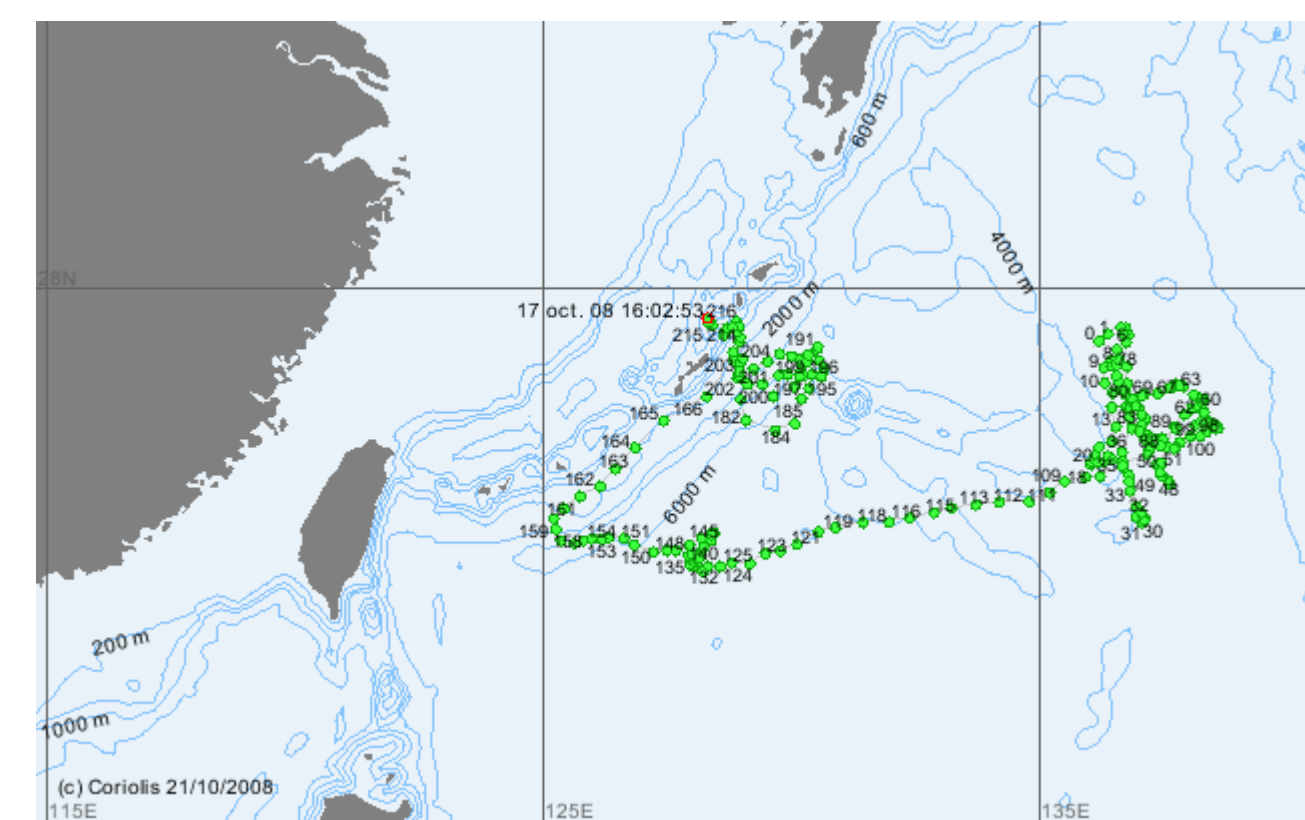


Why a European Research Infrastructure?



Maintaining an array of 800 floats requires high level cooperation between European partners and an efficiency in all implementation aspects: operation at sea, array monitoring and evolution, technological and scientific developments, improving data access for research, coordination of European contribution to the international management of the Argo programme.

Argo observations allow us to monitor the large scale ocean temperature and salinity variations (here the salinity at 10 m depth in October 2008)

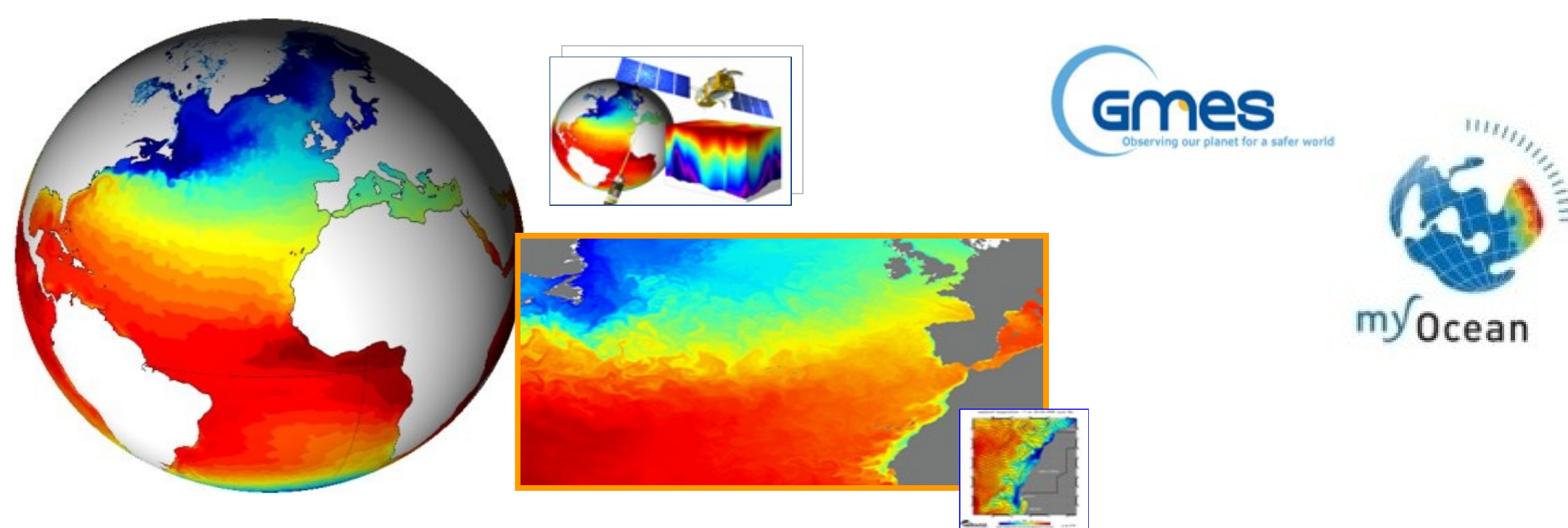


Provor CT53, still active after 219 cycles at sea near Japan.



Argo float deployment

GMES Marine Core Service



Argo is the single most important in-situ observing system for the GMES Marine Core Services (MCS). Argo and satellite data are assimilated into MCS models used to deliver regular and systematic reference information on the state of the ocean for the global ocean and the main European seas. Without Argo, MCS models will not be sufficiently constrained and will not be able to serve several key applications such as environmental monitoring, marine safety, marine pollution monitoring, maritime transport, fishery management, seasonal and climate forecasting weather, offshore industry, navies, etc.

<http://www.euro-argo.eu/>



The Euro-Argo Preparatory Phase (January 2008 - June 2010)

As a new European research infrastructure, Euro-Argo is starting a preparatory phase funded through the EU 7th Framework Research Programme. The main objective of the Euro-Argo preparatory phase is to undertake the work needed to ensure that by 2010 Europe will be able to deploy and operate an array of 800 floats contributing to the global array and to provide a world-class service to the research and environment monitoring communities.

Objectives

- The consolidation of existing national contributions to the infrastructure.
- The development of a direct EC-wide contribution through GMES.
- The development of legal and governance arrangements for the Euro-Argo infrastructure.
- Improvement of the European contribution to the Argo data management and delivery system.
- Enhancing European float technological capabilities and working towards using Argo to study aspects of ocean biogeochemistry
- The development of a vigorous European Argo user community.
- Exploiting the open access to Argo data as an educational "window on the oceans and their role in climate.
- Developing new partnerships between European Argo nations, new European countries and nations outside Europe.
- Integrating the European observing array into the international system.
- Developing a ten year implementation plan.

15 Partners and 12 countries

The Euro-Argo preparatory phase is coordinated by Ifremer, France. The consortium comprises 15 organisations from 12 European countries (France, Germany, United Kingdom, Netherlands, Spain, Italy, Ireland, Norway, Portugal, Greece, Poland, Bulgaria).

