

Euro-Argo Research Infrastructure

European contribution to a global ocean observatory

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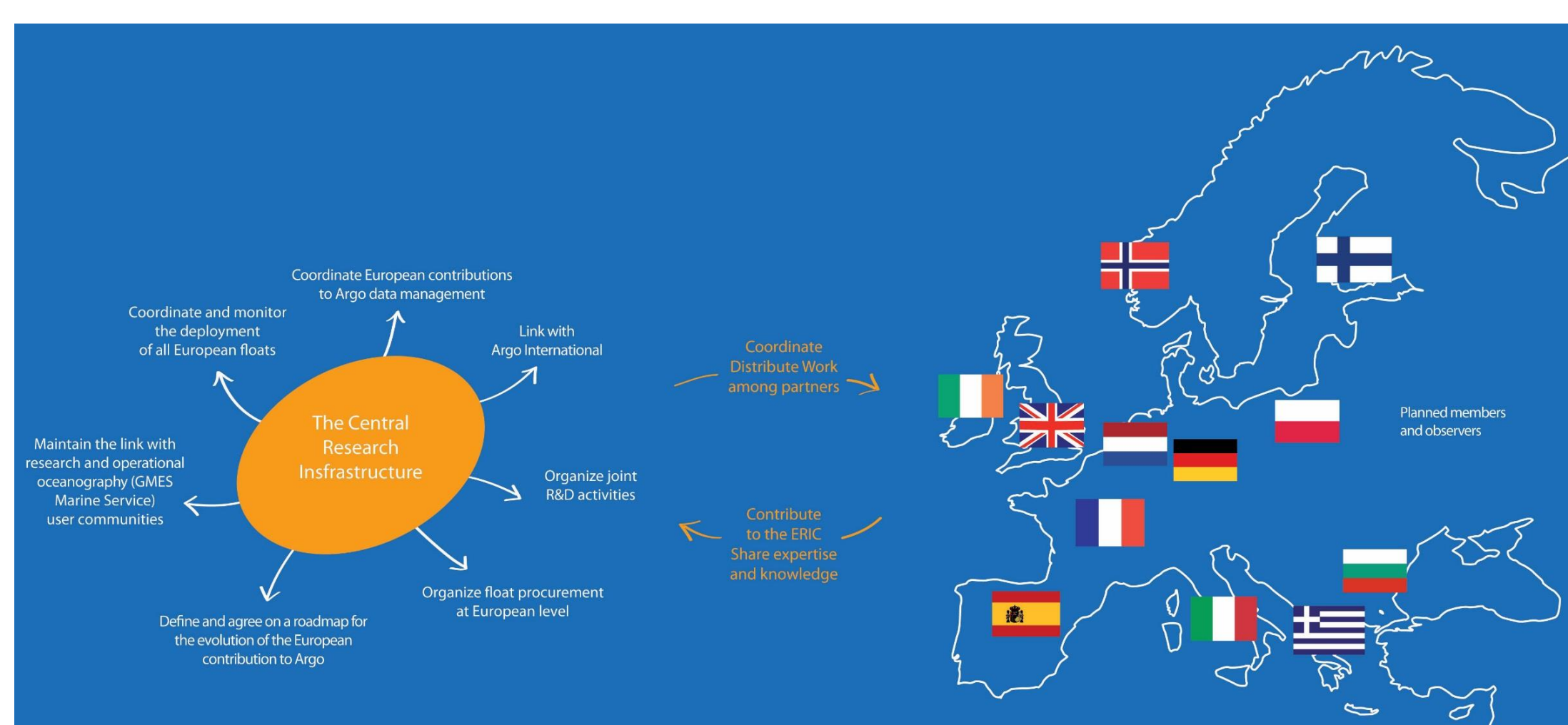
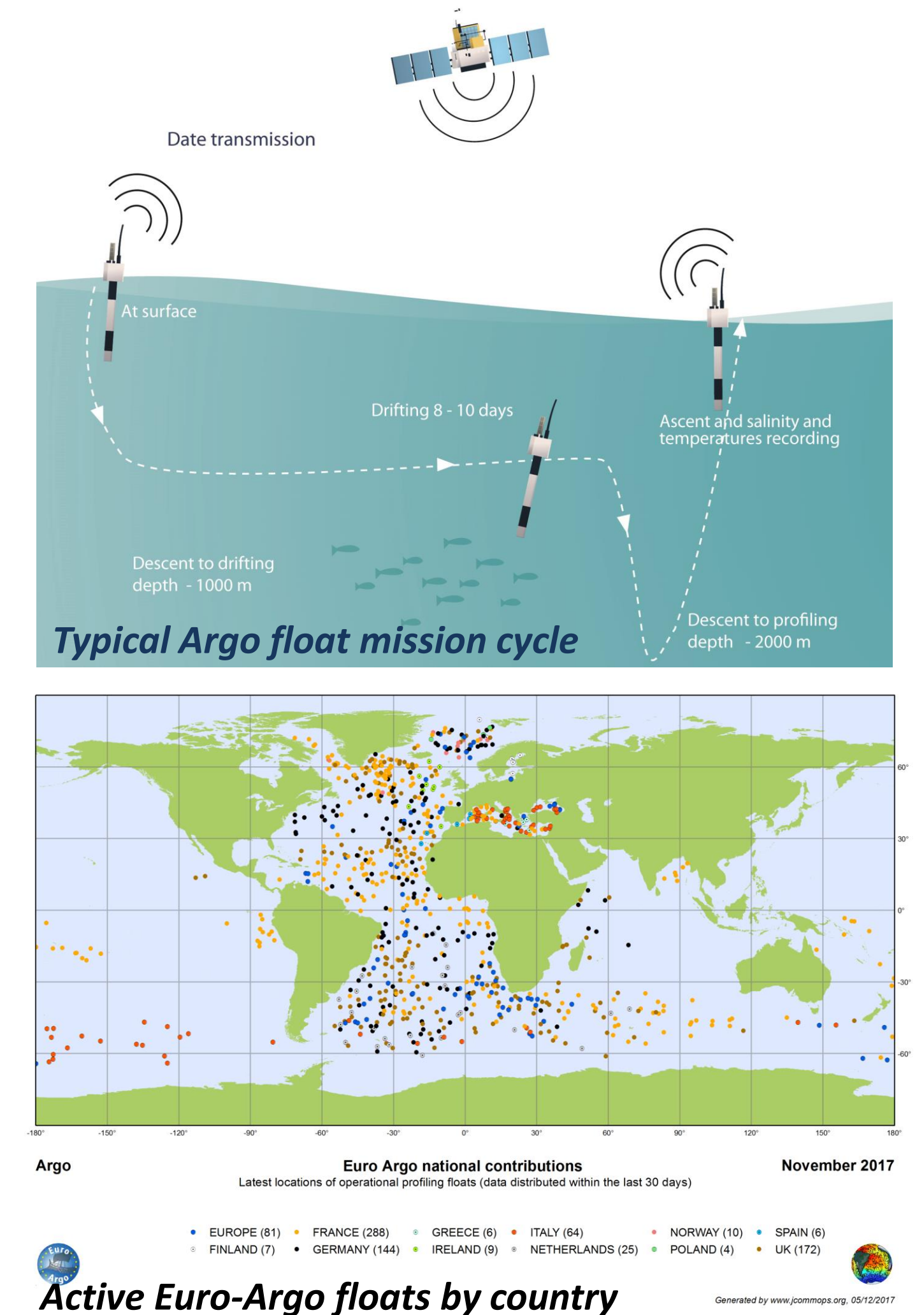
Climate change is one of the most pressing issues of our century. The Oceans have a fundamental influence on our climate and weather. They store, transport and exchange large amounts of heat, water and gases with the atmosphere. These exchanges dramatically affect global and regional climates on time-scales ranging from days to centuries.

Long-term high quality global ocean observations are required to understand the role of the ocean on the earth's climate and to predict the evolution of our weather and climate.

Argo: a revolution in global ocean observation

What is Argo? It is the first International global real-time, in-situ ocean observing system with approximately 3,800 active floats worldwide. These floats measure the temperature and salinity of our oceans to a depth of 2 000 m. The floats deliver global open data sets within a few hours of data acquisition.

What is Euro-Argo? It is a European legal structure which consolidates and improves the European long-term contribution to Argo. The ERIC (European Research Infrastructure Consortium) aims to maintain a network of 800 platforms and deploy about 250 floats per year.



Euro-Argo members. Ifremer (France) has hosted the Euro-Argo Central Research Infrastructure for the first 5 years.

Euro-Argo: a distributed Research Infrastructure

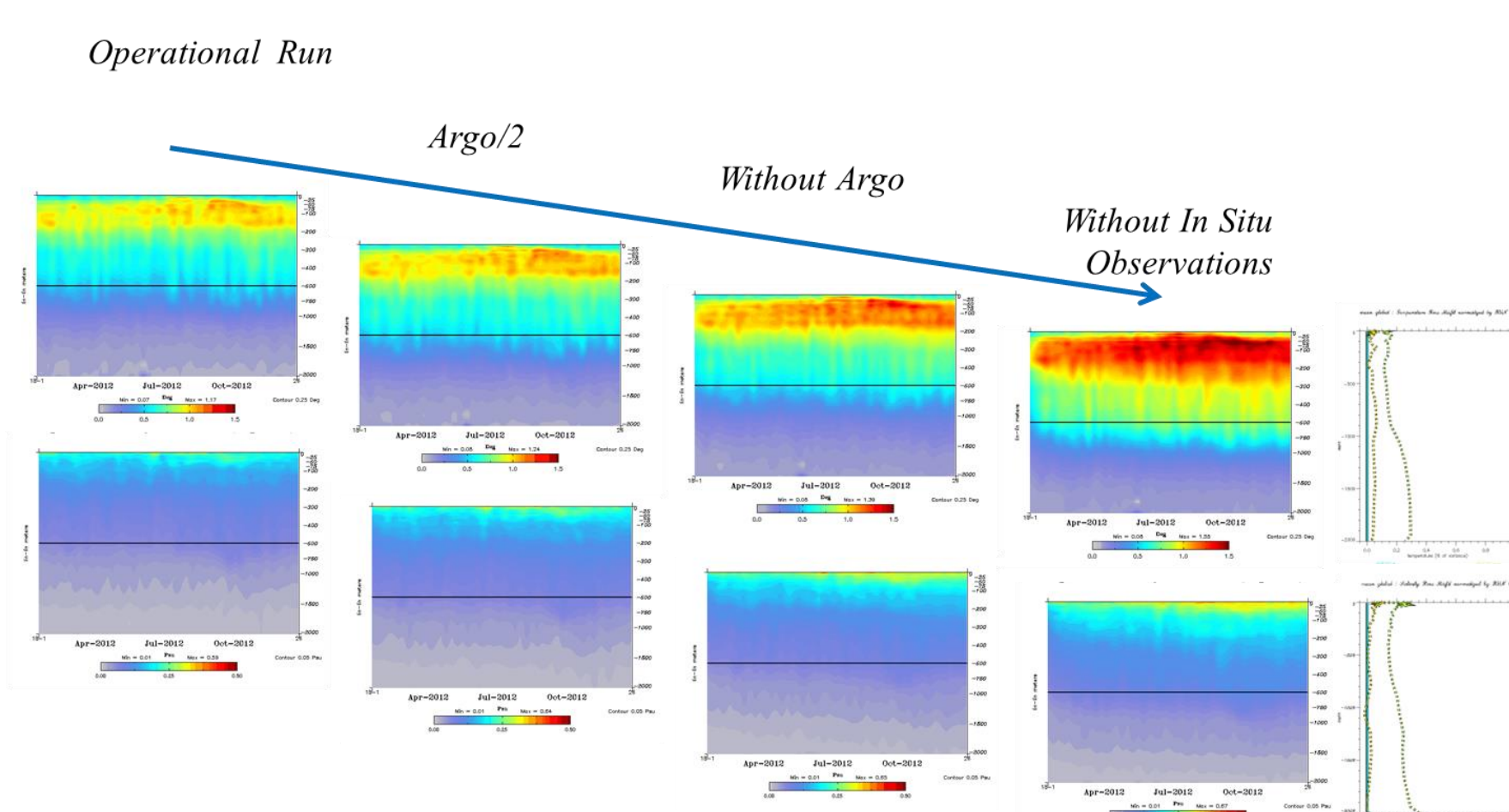
The Euro-Argo research infrastructure strengthens European excellence and expertise in climate research and establishes a high level of co-operation between partners in all implementation aspects:

- operation at sea,
- array monitoring and evolution,
- technological and scientific developments,
- improving data access for research and operational oceanography (Copernicus),
- link to the international management of the Argo programme.

Why do we need Argo floats? Dual use: Research and Operational Oceanography

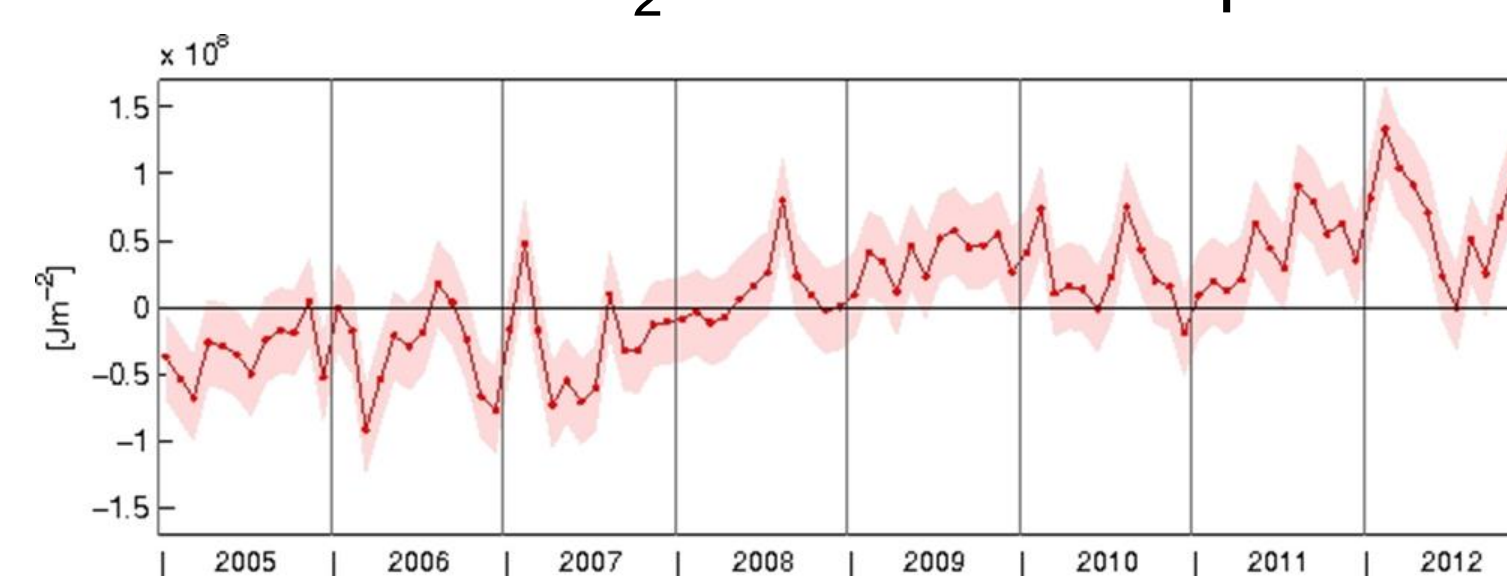
The science case: Climate change and global warming

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, global overturning changes and to better understand the ability of the ocean to absorb excess CO₂ from the atmosphere.



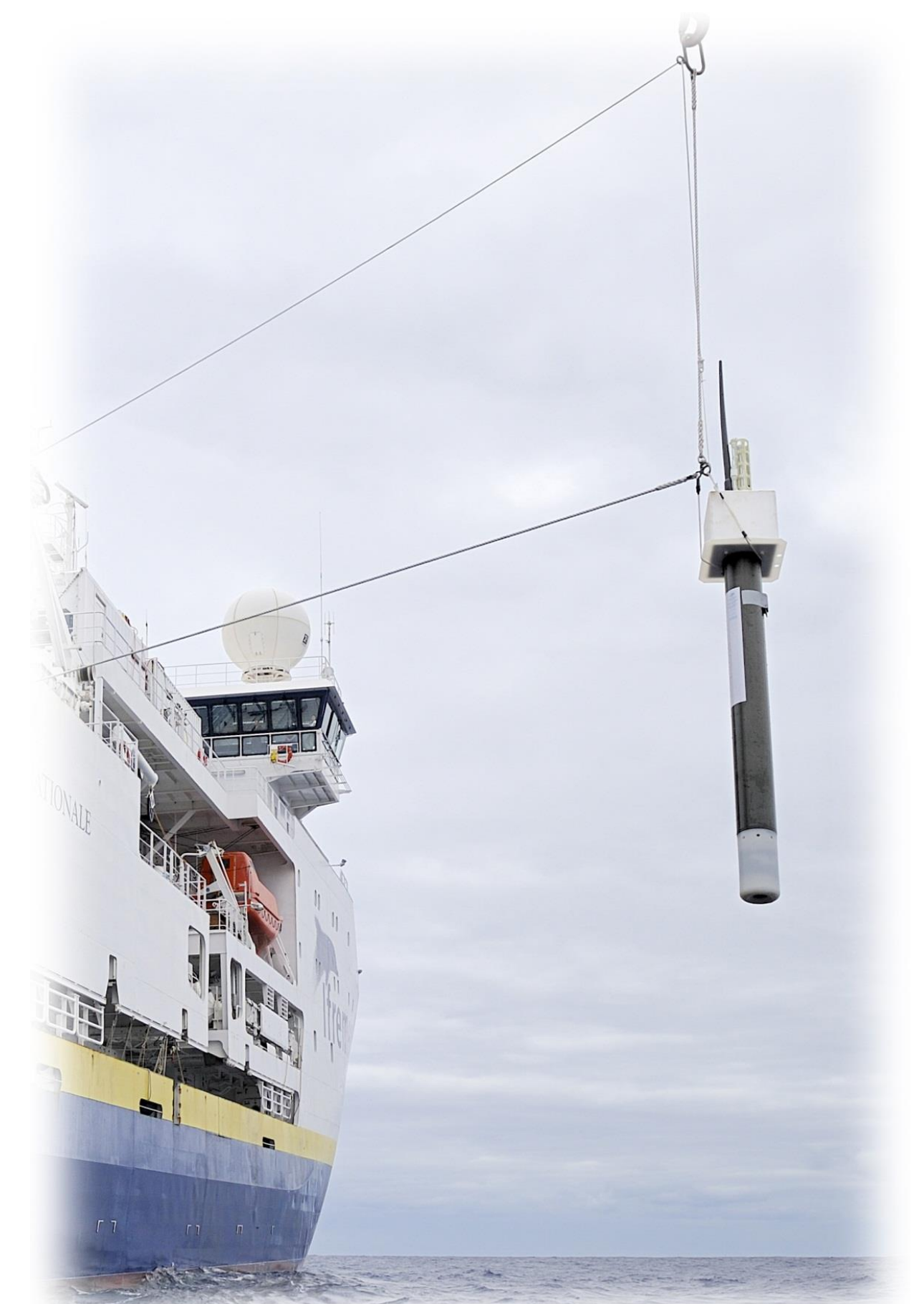
Difference standard deviation with in situ observations in 2012 for salinity and temperature

Global ocean heat content changes derived from Argo data during 2005-2012 (Von Schuckmann & al, 2014).



Operational Oceanography and the Copernicus Marine Core Service

Argo is the single most important in-situ observing system required for the Copernicus Marine Core Service (CMEMS). Argo and satellite data are assimilated into CMEMS models used to deliver regular and systematic reference information on the state of the seas for the global ocean and the main European seas.



Argo float deployment

Euro-Argo and the evolution of Argo for the next decade

The future developments of the programme are:

- **strengthening** Europe's role in and contribution to the global Argo Programme,
- **supporting** the implementation of the EU Marine Policy through the development and subsequent incorporation of biogeochemical sensors (O₂, Chl-a, Nitrate, pH, suspended particles, downwelling irradiance) into the programme,
- **extending** spatially the observations into the European and Polar Seas, as well as into the abyssal parts of the oceans,
- **further developing** the existing data management system,
- **maximising** the relevant knowledge of the seas and oceans, e.g. their role in a changing climate (towards deeper measurements).

Specific goals are under definition for extending the network, in coherence with Argo international strategy (see Euro-Argo ERIC (2016), doi: 10.13155/48526)

Direct funding for Euro-Argo through EU projects



- **E-AIMS** : Euro-Argo Improvements for the Copernicus Marine Service: 16 partners (2013 – 2015).
- **SIDERI** : Strengthening International Dimension of Euro-Argo ERIC - 13 partners (2011- 2013)



- **AtlantOS**: Developing an Atlantic in-situ observing system (ongoing)
- **ENVRI+**: Cluster of RI (global Research Infrastructures) (ongoing)

EMFF: European Maritime & Fisheries Fund opportunity

- **MOCCA** : Procure and deploy 150 floats in global oceans and European marginal seas to complement Euro-Argo contribution.

