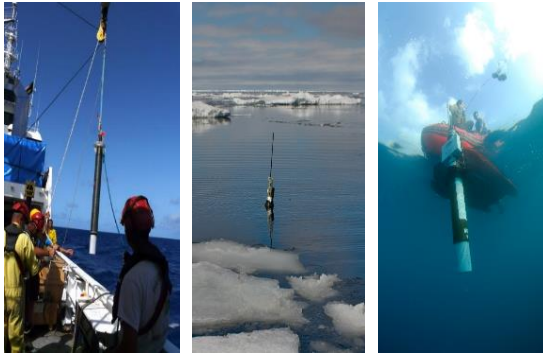# Euro-Argo

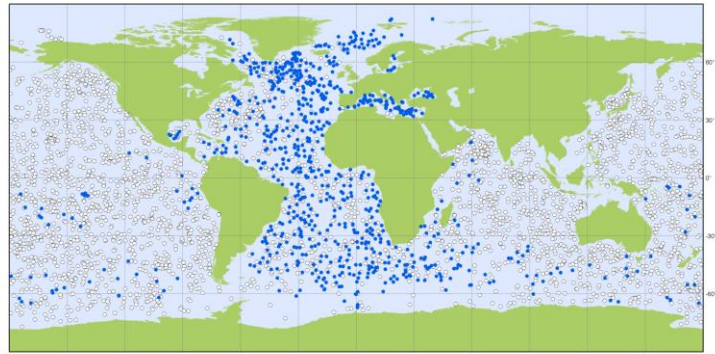## A European Research Infrastructure for observing the Ocean

The ocean has a fundamental influence on our climate and weather. It stores, transports and exchanges large amounts of heat, water and gases with the atmosphere. These exchanges strongly affect global and regional climates in time-scales ranging from days to centuries.

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

Argo - a global ocean observing system

Nearly 4,000 autonomous profiling floats drifting at set depths all over the world's ocean are taking measurements of temperature and salinity from the sea surface down to a depth of 2,000m. Observations are delivered via satellites to data centres where the data are processed and provided to users within a few hours of acquisition. Argo provides a free and open-data access policy.
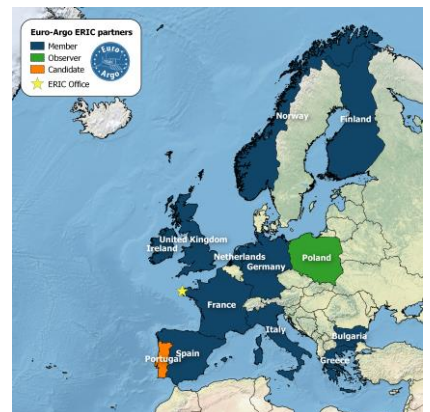

Argo

EuroArgo

European contribution to the Argo program via EuroArgo Research Infrastructure
Latest locations of operational profiling floats (data distributed within the last 30 days)

January 2019

Argo EU (832)   Argo non EU (3077)

Generated by www.jcommops.org
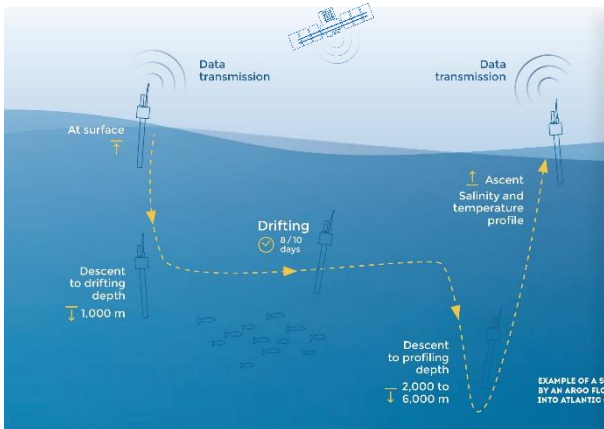
Typical cycle of an Argo float. The cycle is repeated continually throughout the float's lifespan, 4 years on average.

European contribution to Argo

Euro-Argo sustains and optimises the European contribution to the international Argo programme. The objective is to provide a world-class service to research and operational communities. Euro-Argo aims to develop the capacity of maintaining 25% of the global network.

The Euro-Argo Research Infrastructure

Euro-Argo involves 12 countries: 11 members and 1 observer. In 2014, Euro-Argo gained the status of a European Research Infrastructure Consortium (ERIC), a legal entity that ensures its funding in the medium-term through commitments of its members and observers at state level.


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Applications: Understanding the role of the ocean on the climate

Example 1. Heat content variations

Argo provides an unprecedented dataset for researchers to study water mass characteristics and ocean variability ranging from seasonal cycle to interannual variability and climate variations at decadal time scales.
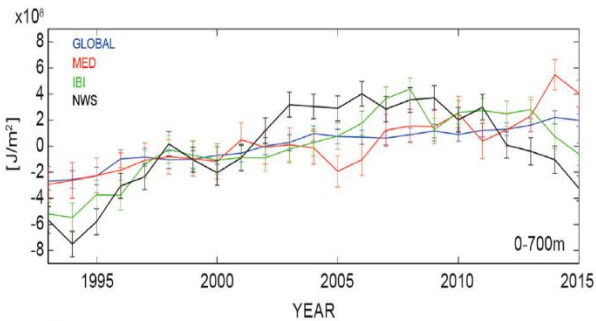

Ocean Heat Content variations [near-global (60°S–60°N) in blue, Mediterranean Sea in red, Iberian-Biscay in green and North-West-Shelf in black].
von Schuckmann et al. (2016)

Example 2. Biogeochemical measurements

The seasonal dynamics of the particle size distribution in the Norwegian Sea can be determined by optical backscattering sensors on Argo floats. This assists with improving our understanding of the biological carbon pump.
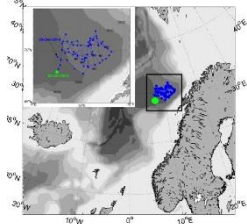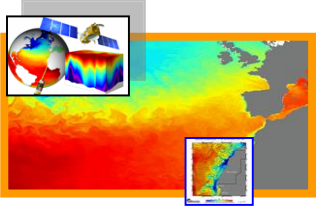

Dall´Olmo & Mork (2014)
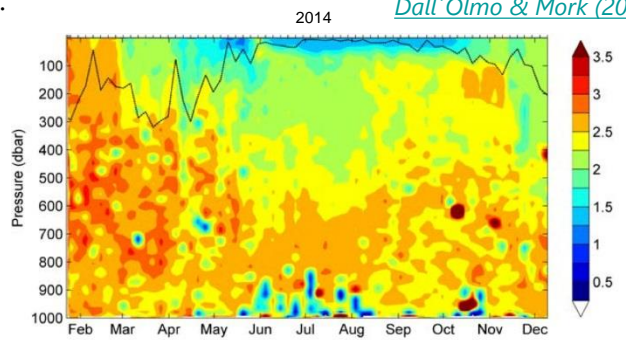
Ratio of green-to-red particulate backscattering (bbp532/bbp700) as a function of depth and time. The solid black line is the mixed-layer depth.

Applications: Feeding ocean forecasting systems

Argo is the single most important *in situ* observing system required for the Copernicus Marine Environment Monitoring 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 data are essential to constrain CMEMS operational models that provide information used in the domains of coastal and marine environment, maritime safety, marine ressources management, weather and seasonal forecasting and climate.

Strategy for Argo in Europe for the next decade

One of the main challenges for Euro-Argo for the coming years is to sustain the core-Argo programme, with 1,000 European floats active at any time.

To fulfil the future scientific needs, Euro-Argo is also developing the extension of the network towards marginal seas, high latitudes, biogeochemistry measurements and greater depth (6,000 m). Several Euro-Argo pilot programmes are ongoing and specific goals are under definition for monitoring marginal seas, high latitudes, the abyssal oceans and ecosystem parameters.

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