

# General requirements of Euro-ARGO

## Context of general requirements in Euro-ARGO

Complete report on general requirements for EURO-ARGO available at: <https://envriplus.manageprojects.com/projects/requirements/notebooks/470/pages/43/comments/294/attachments/342/download>

Recently published article providing global context of ARGO:

**Fifteen years of ocean observations with the global Argo array** *Nature Climate Change*, 6, pp145 - 153 (2016) doi:[10.1038/nclimate2872](https://doi.org/10.1038/nclimate2872)

More than 90% of the heat energy accumulation in the climate system between 1971 and the present has been in the ocean. Thus, the ocean plays a crucial role in determining the climate of the planet. Observing the oceans is problematic even under the most favourable of conditions. Historically, shipboard ocean sampling has left vast expanses, particularly in the Southern Ocean, unobserved for long periods of time. Within the past 15 years, with the advent of the global Argo array of profiling floats, it has become possible to sample the upper 2,000 m of the ocean globally and uniformly in space and time. The primary goal of Argo is to create a systematic global network of profiling floats that can be integrated with other elements of the Global Ocean Observing System. The network provides freely available temperature and salinity data from the upper 2,000 m of the ocean with global coverage. The data are available within 24 hours of collection for use in a broad range of applications that focus on examining climate-relevant variability on seasonal to decadal timescales, multidecadal climate change, improved initialization of coupled ocean-atmosphere climate models and constraining ocean analysis and forecasting systems.

## Summary of Euro-ARGO general requirements for <topic>

### Detailed requirements

Euro-Argo is a European Research Infrastructure (ERIC) dedicated to in situ ocean observation with Argo floats.

An individual Argo float is deployed in the open ocean. For a few years, it will continuously sample the ocean from surface to 2000 meters (or more with deep floats). The observations are ocean state essential variables such as temperature, salinity, current, oxygen, chlorophyll, pH, carbon.

Euro-Argo is the European contribution the global Argo observation network sustained with more than 3000 active floats.

Euro-Argo data-management collects, decodes, controls and distributes European floats data to Argo global data assembly centre (Argo GDAC).

Euro-Argo is hosting one of the 2 Argo GDACs (Ifremer in France and USGODAE server in USA).

#### Operation

The objective of Euro-Argo is to operate the European contribution of Argo, which should represent 30% of the global network.

These last 12 months, 25 568 profiles from 745 active floats were collected, controlled and distributed.

Compared to 2014, the number of profiles increased by 18%, the number of floats increased by 14%. The increase in both profile and platforms number is mainly explained by new bio-Argo floats.

The 745 floats managed during that period had 54 versions of data formats.

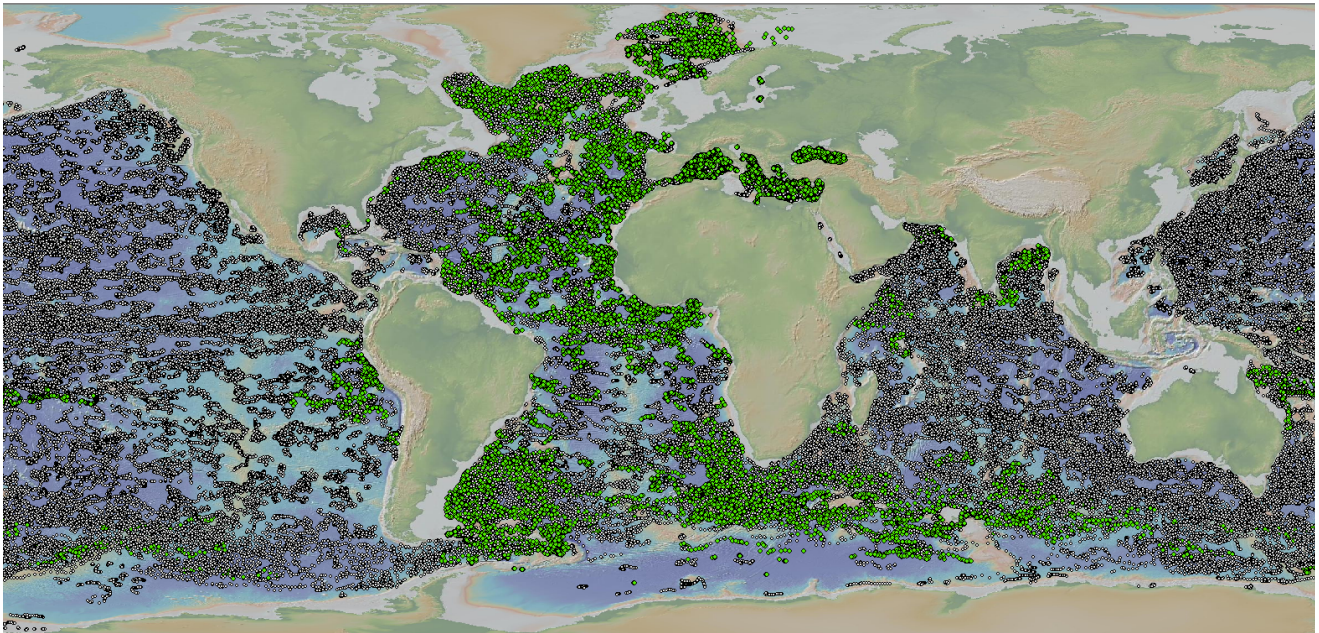
All observations are publicly available in in the homogeneous Argo NetCDF CF data and metadata files on:

- <ftp://ftp.ifremer.fr/ifremer/argo>

Once a month, a snapshot of Argo data set is performed. A DOI (Digital Object Identifier) is minted on the archive of the month.

The data DOIs and their related publications are listed on:

- <http://www.argodatamgt.org/Access-to-data/Argo-DOI-Digital-Object-Identifier>
- The Argo data "master" DOI: <http://dx.doi.org/10.12770/1282383d-9b35-4eaa-a9d6-4b0c24c0cfc9>



Map of the profiles from active floats decoded by Euro-Argo RI this year (2015), among the other DAC's (providers) profiles (Euro-Argo: green, other DACs: grey)

## Data and computation

Euro-Argo data are available from both "static" files or from data bases.

- There is one Argo NetCDF file per profile (observations in one place and time on the water column).
- The million profiles is also available in an aggregated way from
  - Thredds server (Thredds is developed by Unidata)
  - Oceanotron server (Oceanotron is developed by Copernicus and SeaDataNet)
  - From the Ifremer-Coriolis Oracle database
  - From Sextant CSW catalogue and its associated Argo DOIs

ENVRIPLUS data infrastructure will help Euro-Argo in contributing to cross-domain activities such as ocean-atmosphere interaction. Here is a short description of the use case that would be interesting for Euro-Argo RI and any other RI providing observation data.

*Data subscription service to scientific users for publicly available data:*

- The user provides his criteria: time, spatial, parameter, data mode, update period for delivery (daily, monthly, yearly, on the spot)
- The relevant data are pushed from the RI to the ENVRI cloud
- The data may be converted/transformed on the ENVRI computation grid
- The cloud account of the user is updated regularly with the new data provided above
- An accounting of data provision and data delivery is performed.

## References

- Argo data management documentation: <http://www.argodatamgt.org/Documentation>
- Argo reference datasets: <http://www.argodatamgt.org/Access-to-data/Argo-DOI-Digital-Object-Identifier>

## Formalities (who & when)

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<b>RI representative</b>	Sylvie Pouliquen
<b>Period of requirements collection</b>	
<b>Status</b>	