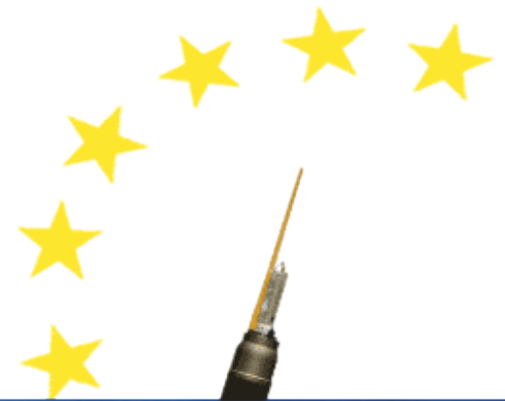




Presentation of the Euro-Argo ERIC

S. Pouliquen and Euro-Argo partners

Brest 28th April, 2016





The Euro-Argo European Research Infrastructure

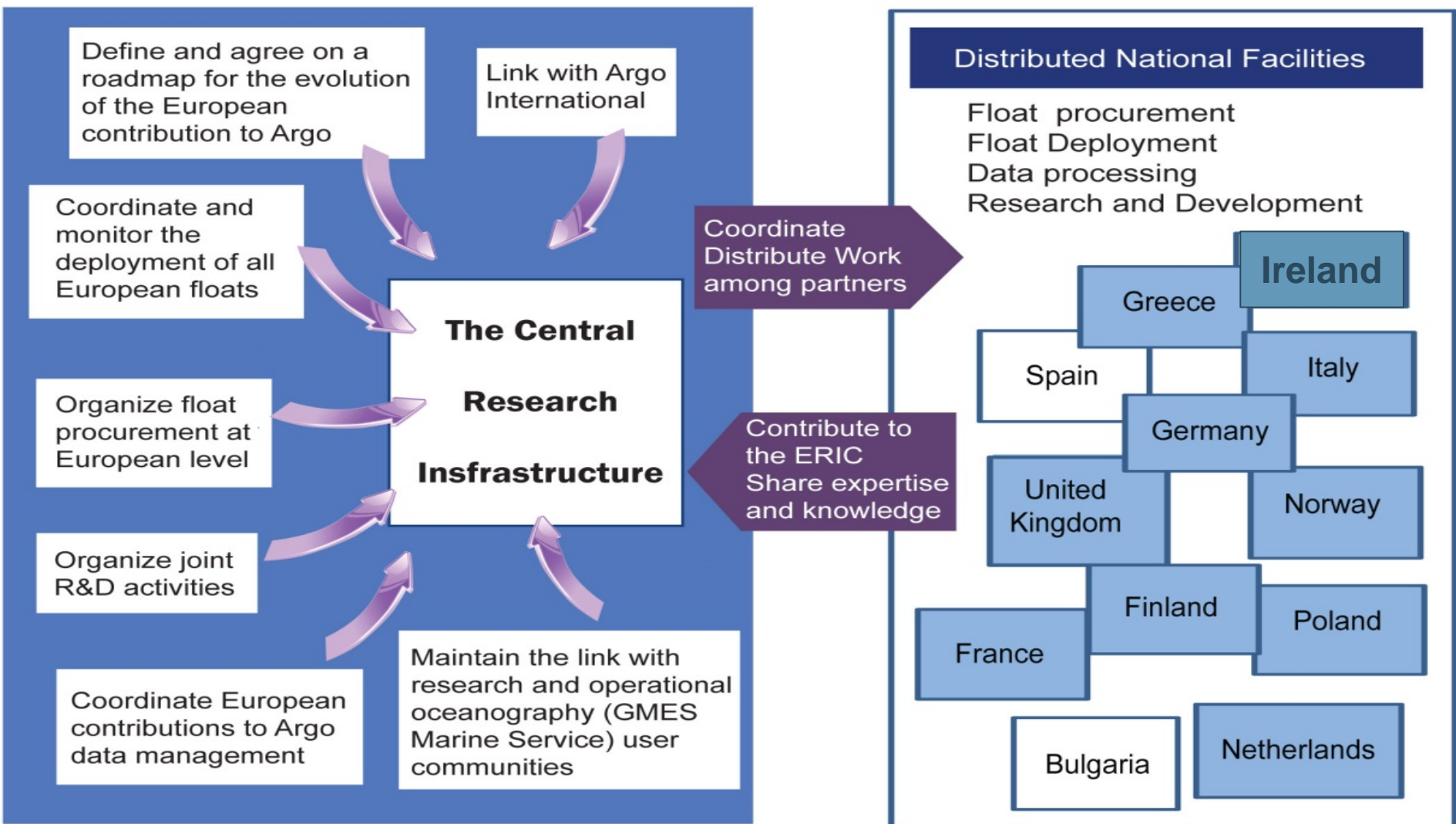
- Objective: ensure a long term European contribution to Argo
- Goal : Europe establishes an infrastructure for ¼ of the global array
 - ✓ Deploy about 250 floats per year to contribute to the Argo core mission including regional enhancements (Nordic seas, Mediterranean&Black seas) (maintain an array of 800 floats).
 - ✓ Prepare and contribute to the extension of Argo (e.g. marginal seas, biogeochemistry, deep ocean, polar regions).
 - ✓ Users and applications: ocean and climate research and operational oceanography (GMES/Copernicus Marine Service).
- A new European legal structure (Euro-Argo ERIC) was set up in 2014 to allow European countries to consolidate and improve their contribution to Argo international.





Organisation of the Euro-Argo RI

A central facility and distributed national facilities





The Governance of the Euro-Argo ERIC

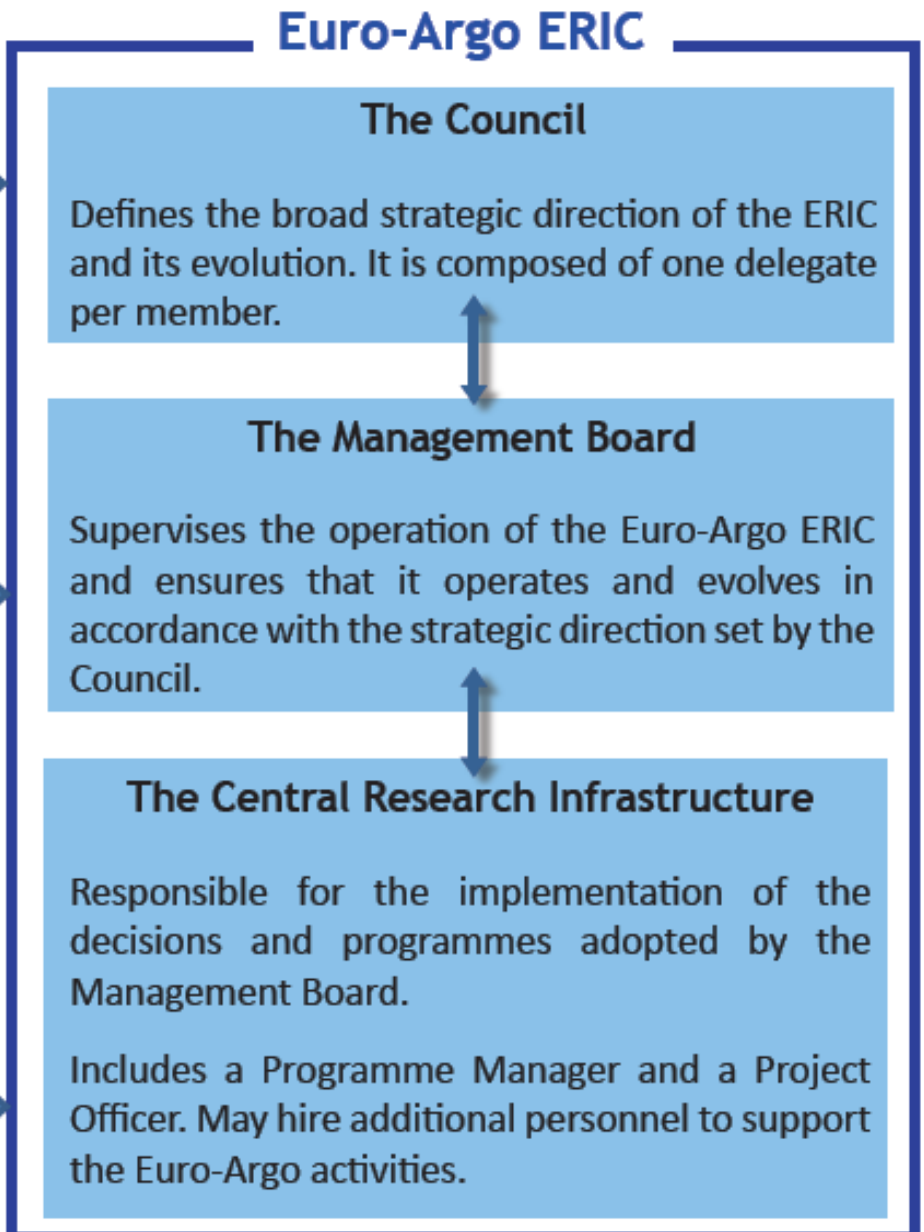
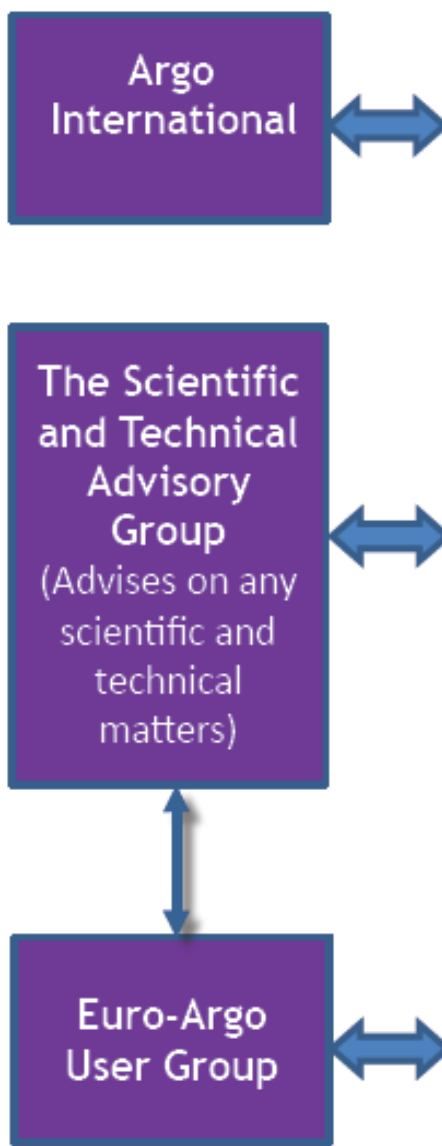


Local Host for Euro-Argo ERIC
France (Ifremer, Brest)

Members: Finland, France, Germany, Greece, Ireland, Italy, Netherlands, United Kingdom

Observers: Norway, Poland

Candidate Members or Observers : Spain, Bulgaria (Portugal, Sweden, Turkey shown interest)

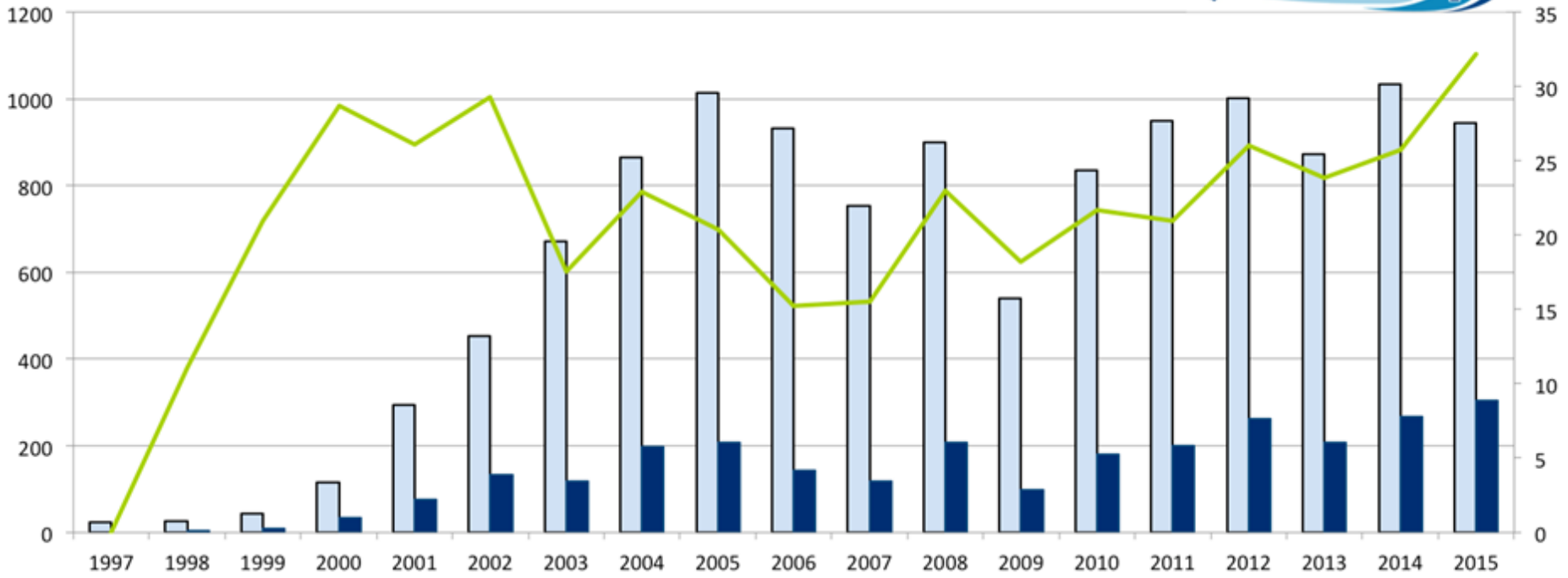




Coordination of float Deployment

	2013 deployed	2013 Argo extension	2014 deployed	2014 Argo extension	2015 deployed	2015 Argo extension	2016 estimated	2016 Argo extension	2017 estimated	2017 Argo extension	2018-2020 plans (per year)
European Union	2	2		7	2		60	7	70	6	80
Bulgaria		1	0	0		1					
Finland		4		5		2		3		3	3
France	65	16	87	10	101	20	65	15	65	15	80
Germany	31	7	58	15	66		50	6	50	25	40
Greece		2				5		5		5	5
Ireland	1		2		2		3		3		3
Italy		12		21		26	15	20	15	20	35
Netherlands	4		4		2		14		7		7
Norway	2	1	2	4	3		3		3		3
Poland					3		3		3		3
Spain	1		1		1		3	1	3		3
UK	34	2	48	2	32		25	23	34	6	40
Total	140	47	202	64	212	54	241	80	253	80	
	187		266		266		321		333		302

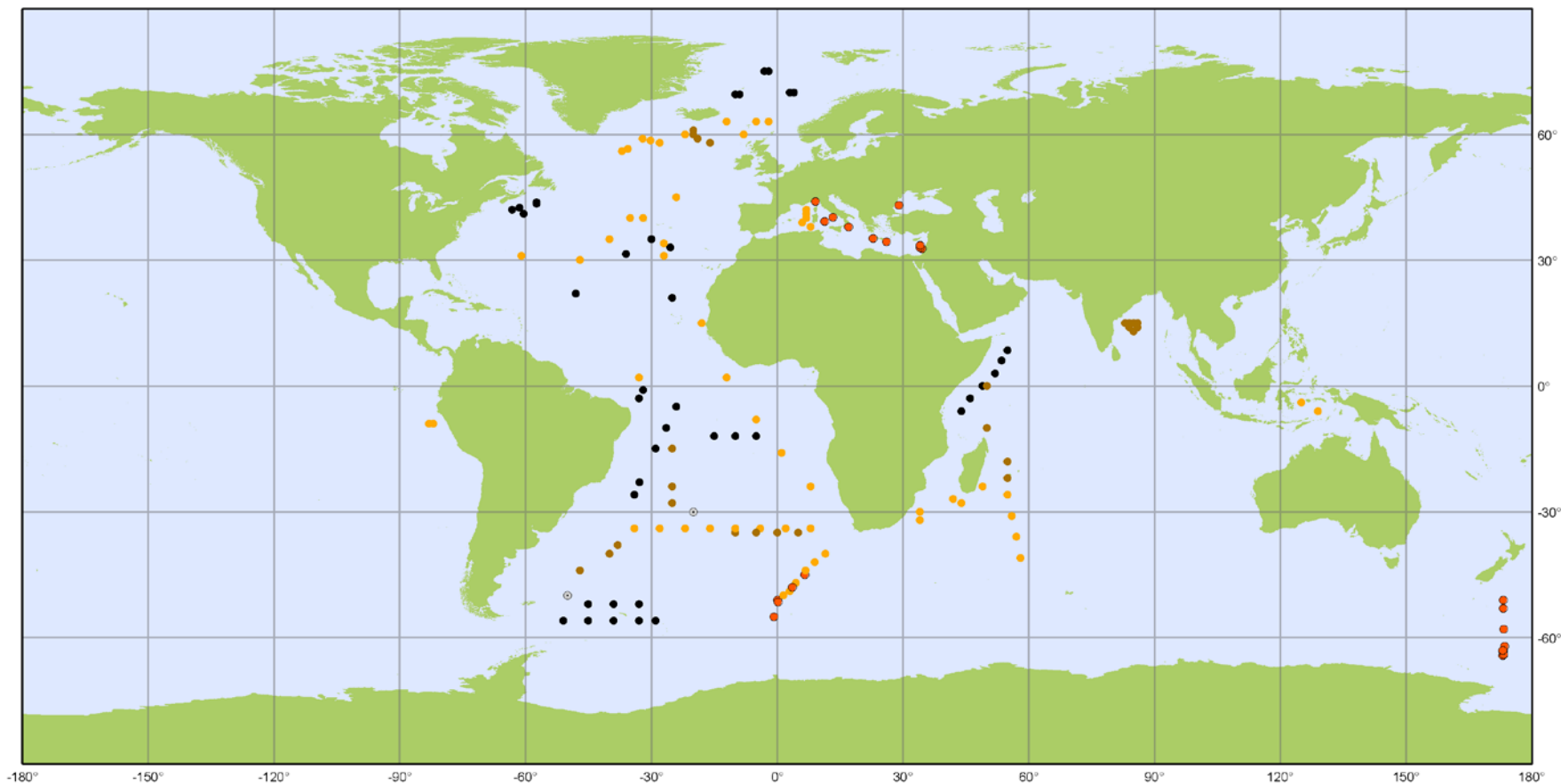
- Number of floats deployed for 2011 to 2014
- Number of floats procured for 2015 and after . Part of these floats may be deployed the following year
- EU contribution is increasing



Number of Argo float deployed (light blue) and Number of Euro-Argo floats (dark blue) per year - %Euro-Argo versus Argo (green).



Coordination of float Deployment



Argo

EuroArgo Deployment Plans

March 2016

Deployment date \geq today

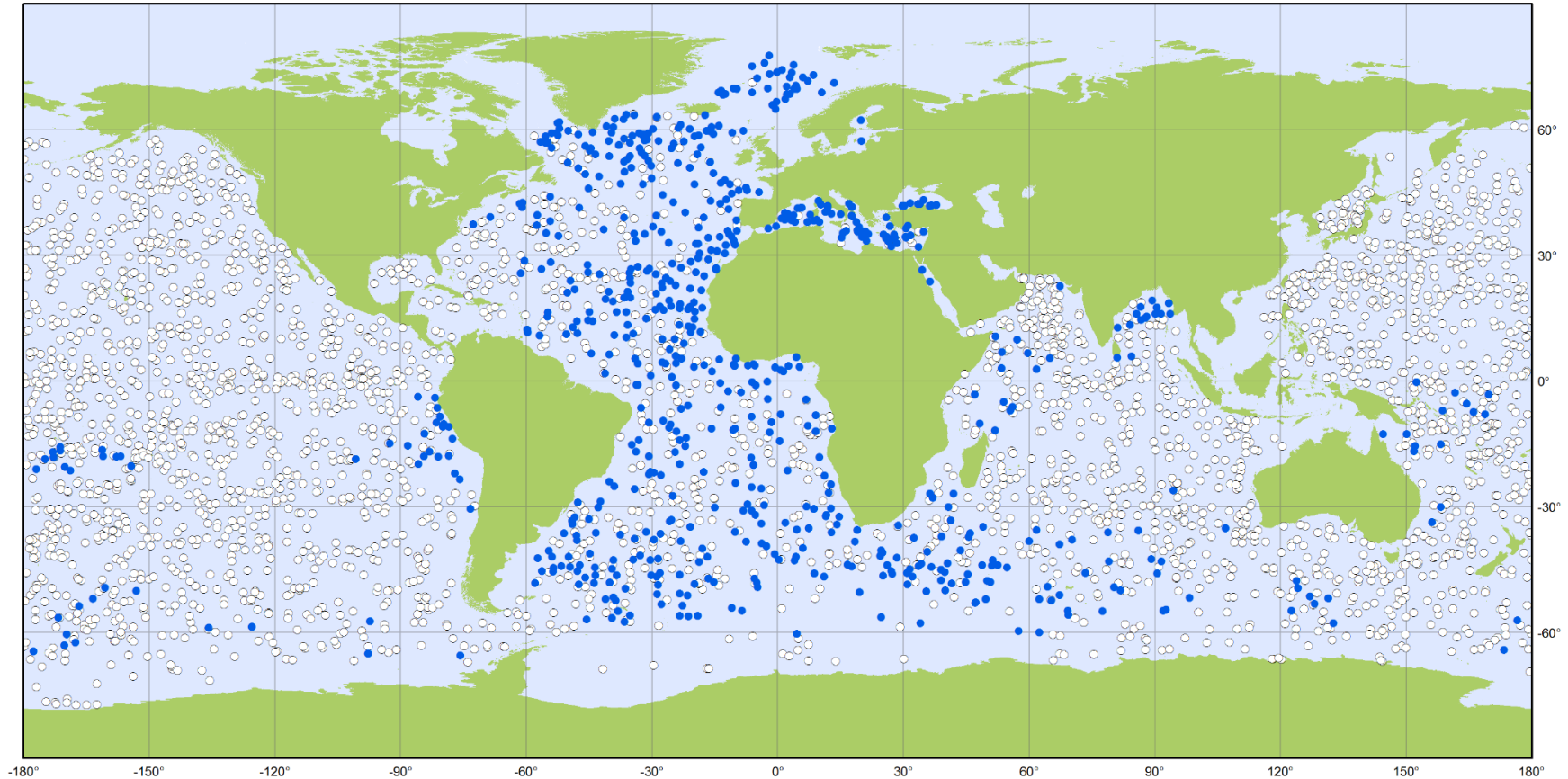
- FRANCE (58)
- GERMANY (41)
- ITALY (27)
- ⊙ NETHERLANDS (14)
- UK (31)

171 among the 210 new floats registered for deployment in 2016





Contribution to the Network



Argo

EuroArgo

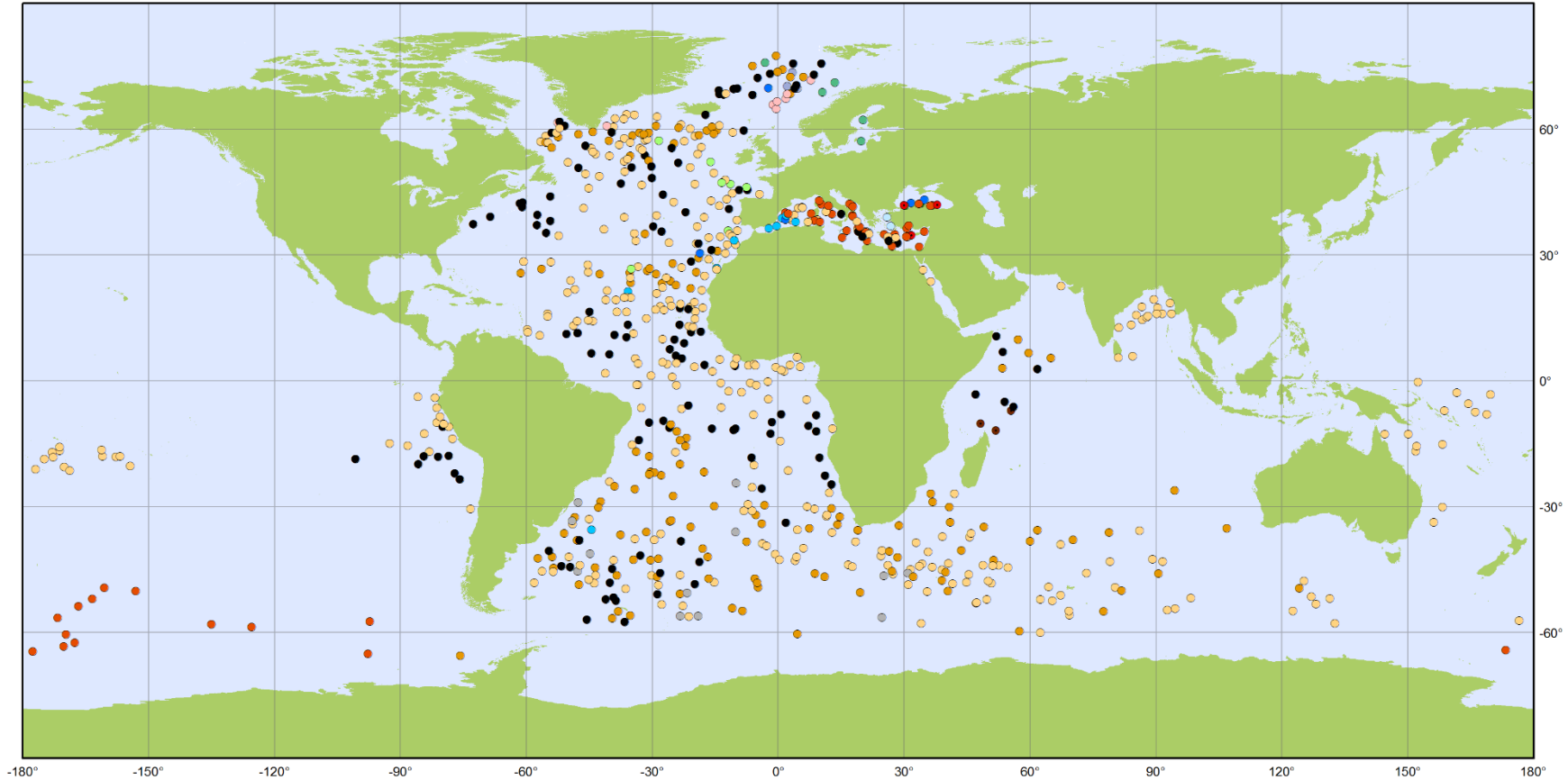
February 2016

European contribution to the Argo program via EuroArgo Research Infrastructure

Argo (white dots, 3142 floats) and Euro-Argo RI (blue dots, 710 floats) active profilers in February 2016 (source: jcommops/AIC)



Contribution to the Network



Argo

Euro Argo national contributions

February 2016

Latest locations of operational profiling floats (data distributed within the last 30 days)

- | | | | | |
|----------------|-----------------|-----------------|--------------------|--------------|
| ● BULGARIA (2) | ● FRANCE (336) | ● IRELAND (7) | ● NETHERLANDS (12) | ● SPAIN (9) |
| ● EUROPE (5) | ● GERMANY (125) | ● ITALY (47) | ● NORWAY (8) | ● TURKEY (3) |
| ● FINLAND (5) | ● GREECE (7) | ● MAURITIUS (3) | ● POLAND (3) | ● UK (139) |





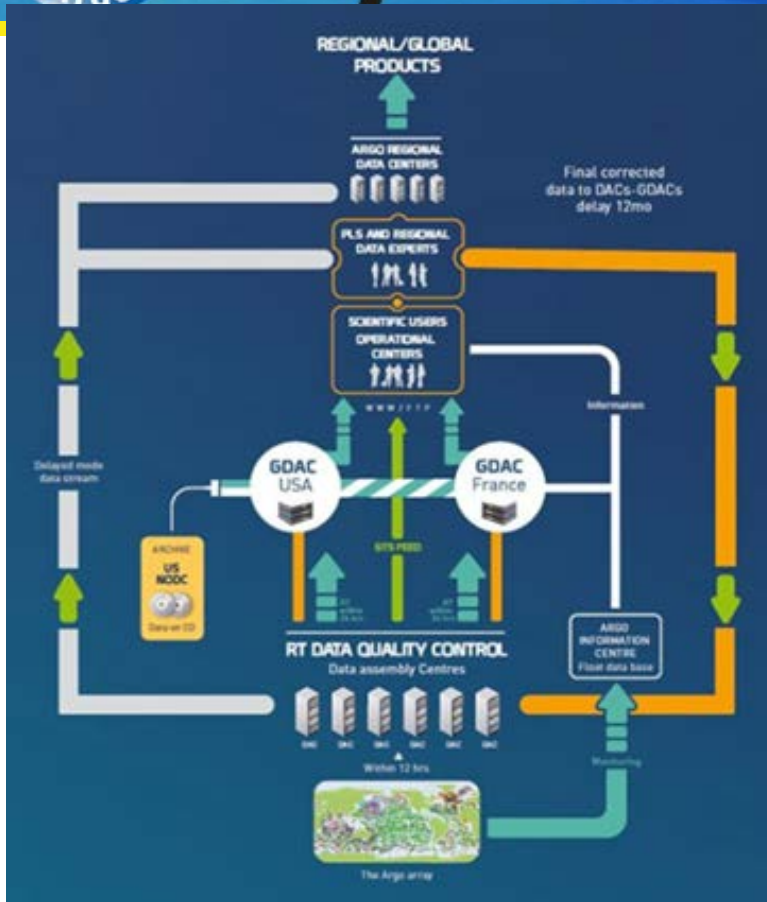
Contribution to the network



- Euro-Ago fleet monitoring (planned)
 - Based on analyses of European fleet data at Coriolis G(-Dac including V3 technical files. This is possible by loading in the Coriolis database the new technical files
 - At the ERIC , floats behaviour (at list the failures) will be periodically analysed and a summary report provided .
 - The ERIC will rely on the national experts
 - for in depth analysis of failure
 - and also liaise with float and sensor manufacturers, especially when new failure modes are identified
- Develop training material first for float deployment but also for facilitate data usage by new teams (planned)



Coordinate Data Management



- Coordinate European contribution to Argo data Management
- Ensure that all European floats is processed in real time Delayed mode
- Consolidate Argo data at basin scale : North Atlantic Med and Black Seas, Southern Ocean (Atlantic area)

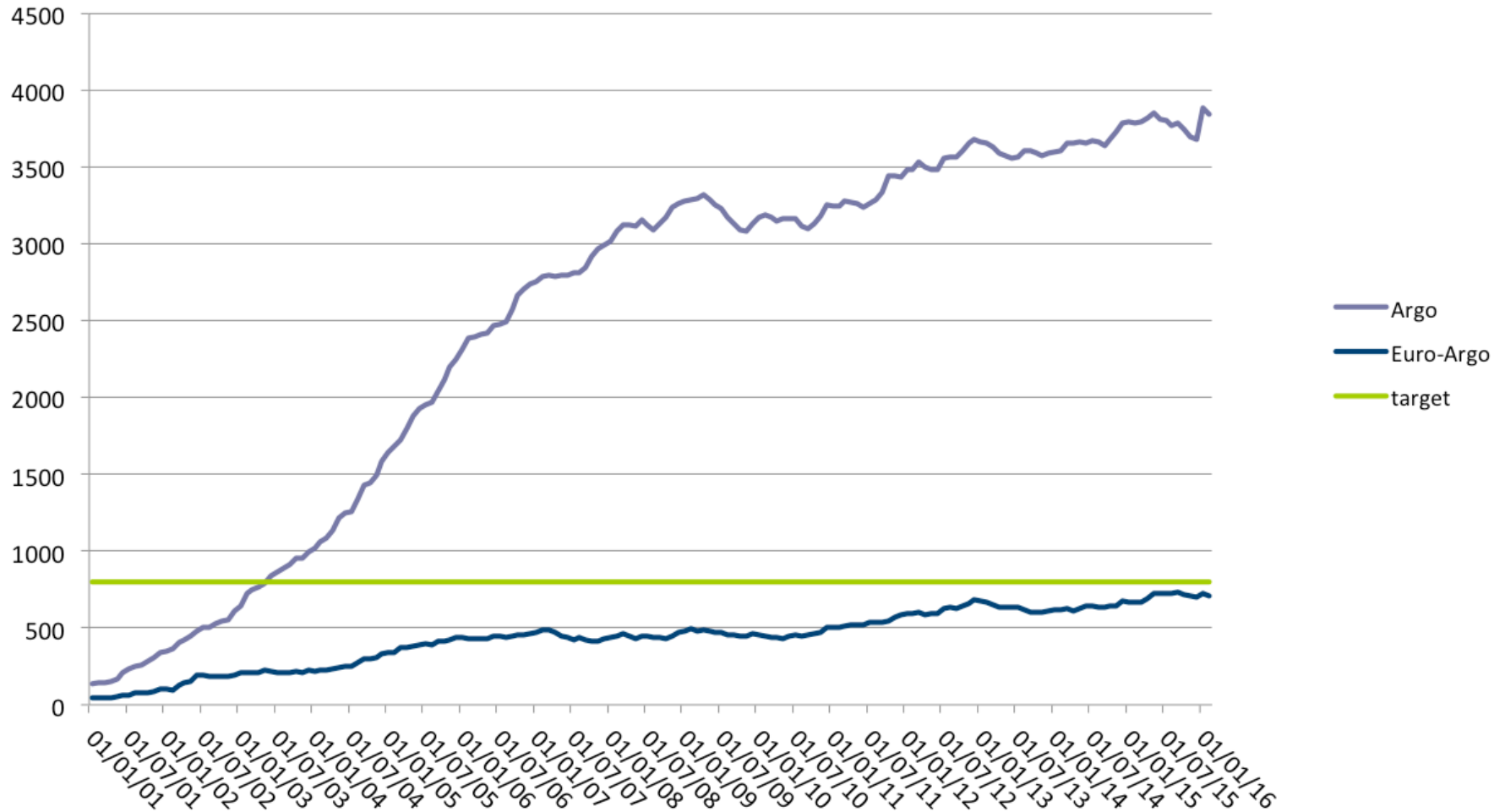
- Global Data Centre : France
- 2 Data centres : France and UK
- 4 Delayed Mode Operators: France Germany Italy and UK
- 3 regional coordination : France Italy and UK



Coordination of float processing



**Euro-Argo distinct floats distributing data at GDACs
vs Argo
(monthly values)**





Link with Argo International



- **Argo Steering Team**
 - Consolidate Euro-Argo deployment plan and monitor members/observer contribution
 - Prepare papers on sensible topics identified at AST meetings
 - Prepare a consolidate strategy and implementation plan for the European contribution to Argo to feed Argo international developments
- **Argo Data Management Team**
 - Work with members/observers to organize European fleet processing both in real-time (France and UK)and delayed mode (France Germany Italy and UK)
 - Prepare papers on sensible topics identified at ADMT meetings
 - Enure that the Euro-Argo members fulfil their obligations and take appropriate action to do it if needed



Organizing User interaction



- User workshops organized every 2 years
 - Inform the European community on Argo and Euro-Argo activities
 - Strengthen the link with Operational community and in particular Copernicus Marine Service
 - Share scientific activities based on Argo
 - Discuss the evolution of Argo
- Euro-Argo WWW site
- Outreach and training

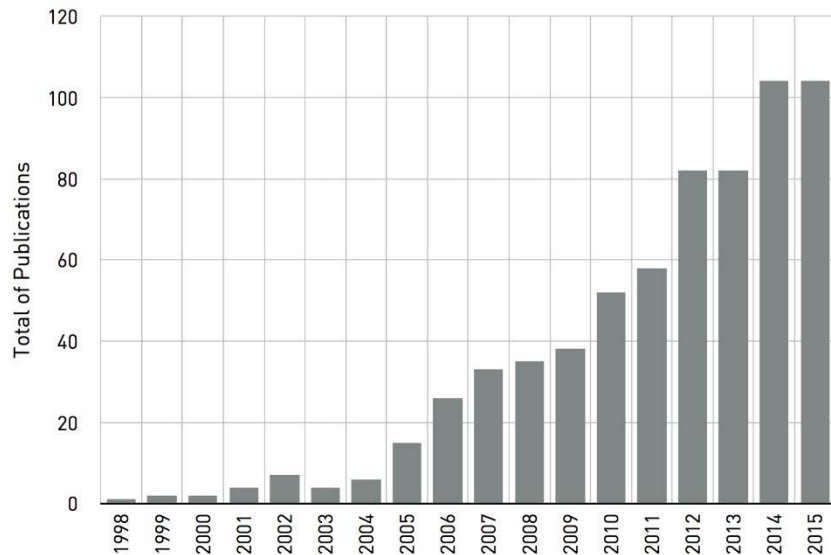




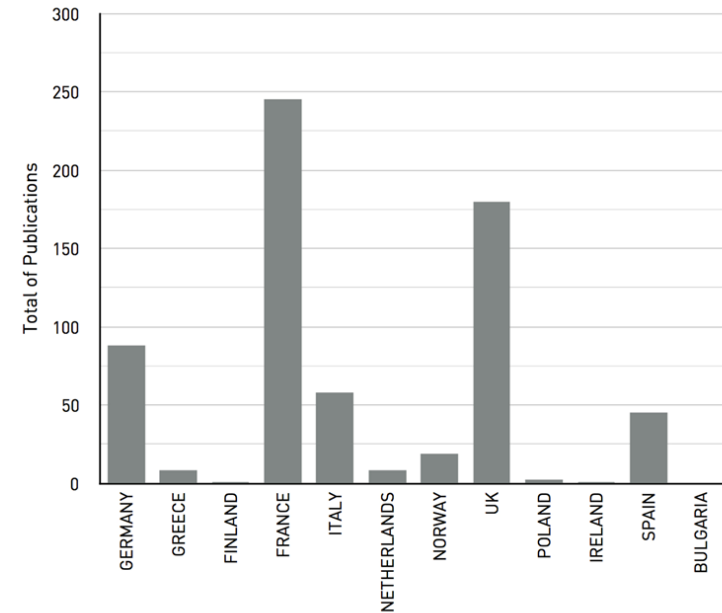
Communication on the Science made with Argo by Euro-Argo community

- Monitoring EuroArgo Bibliography (About 30% of the Argo publications)

Euro-Argo Bibliography 1998-2015



Euro-Argo Bibliography 1998-2015



- Highlighting main results on the Euro-Argo WWW (Science rubric <http://www.euro-argo.eu/Main-Achievements/European-Contributions/Science>)



Coordinate interactions with European Commission

- Work with EC for EU Funding to complement national funding
- Coordinate float procurement at EU level
- Coordinate with Copernicus to take into account their needs
- Organize with EC support to R&D activities through project to develop the new phase of Argo



Euro-Argo views on the long term evolution of Argo

Euro-Argo needs to meet requirements from the research and operational (Copernicus Marine Service) oceanography community in Europe.

- **Priority 1** : maintain the global array.
 - Increase European contribution from 150-200 floats to 250 floats/year and consolidate the data processing system . It will be possible in the coming 2 year with the EU contribution (MOCCA project)
 - Strong European requirement for marginal seas
 - Important European research activities in high latitudes: Nordic Seas, Arctic
- **Priority 2**: evolution of Argo to address new scientific and operational challenges.
 - Strong interest (and good maturity) of the European research community and/Copernicus (operational oceanography) for extension to biogeochemical variables : Oxygen, Chl-a. Several pilot experiments ongoing (e.g. Remocean, NAOS, E-AIMS, AtlantOS).
 - Improved resolution at the surface (SST, SSS) needed (on going)
 - Deeper measurements needed. Pilot experiments on going (NAOS, E-AIMS, AtlantOS).



The team



- Sylvie Pouliquen Program Manager



- Francine Loubrieu Program Assistant



- Grigor Obolensky Project scientist

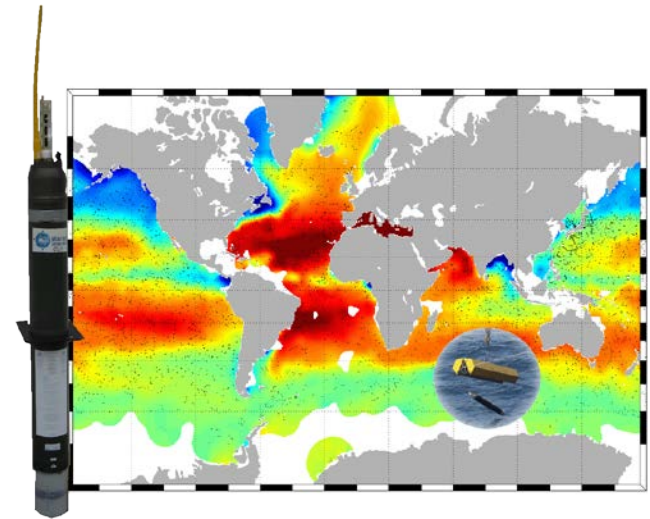


- Romain Cancouet instrumental engineer



The objective of Euro-Argo is to ensure a long term contribution of Europe to a Global Ocean Observing System

- The European legal structure and organization has been set up .
- This infrastructure allows EU member states to better coordinate, consolidate and sustain their contribution to Argo international. Agreements are at ministerial level and this will help to ensure long term sustainability.
- Good progress on the required direct EC (DG-Mare- DG-Research- Copernicus) contribution to Euro-Argo. Sustainability of funding is now needed .





FMI



Royal Netherlands Meteorological Institute
Ministry of Infrastructure and the Environment

