



Euro-Argo

Global Ocean Observing Infrastructure

EU FP7 PP Project, included in ESFRI Roadmap
Environmental Sciences

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What is Argo? A global ocean observing system for the 21st century.

Motivation:

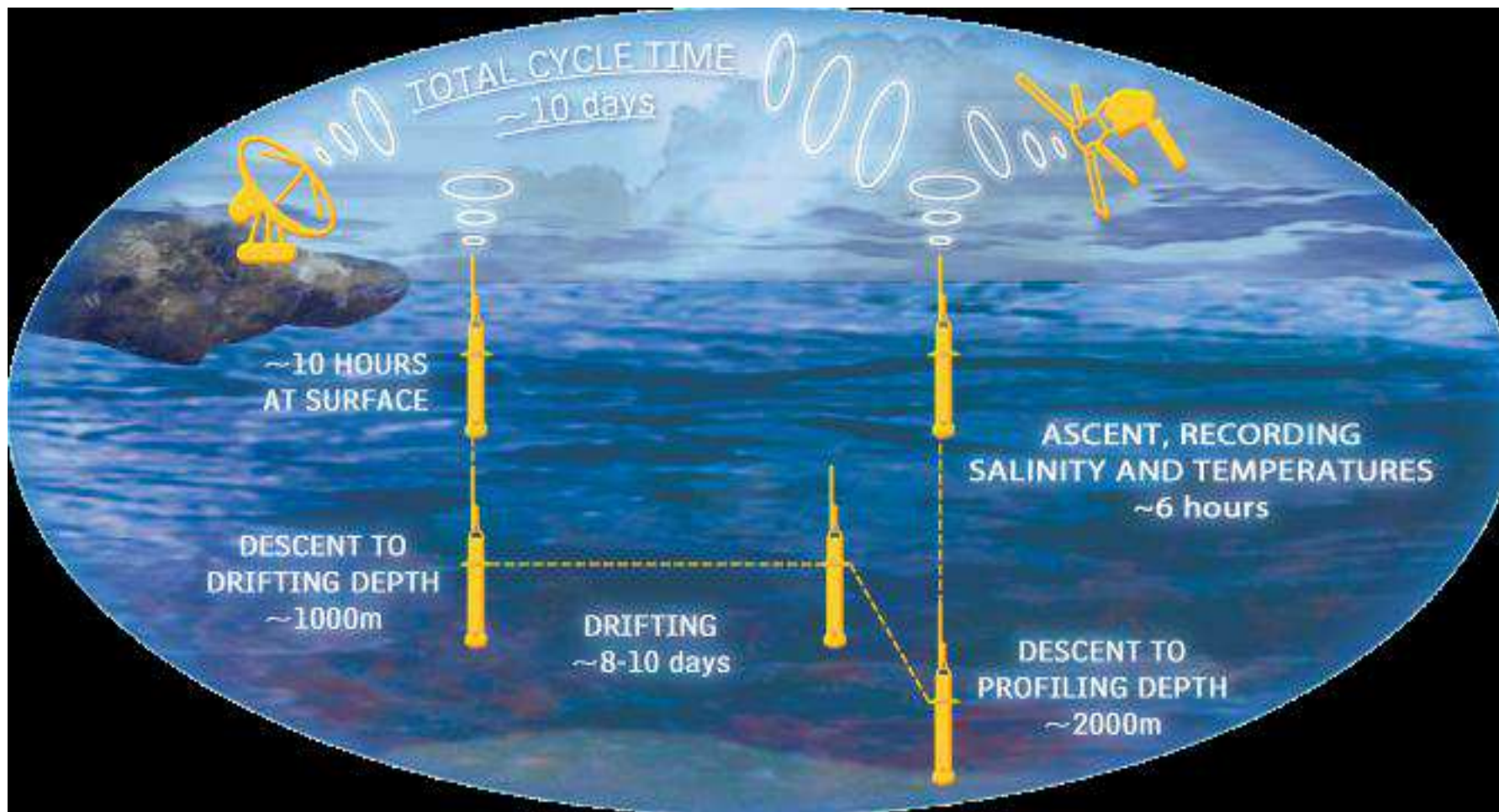
The science of climate change is one of the most pressing issues of our century. Understanding and prediction of changes in the atmosphere and ocean are needed to guide international actions and government's policies. This requires global data sets of the highest quality. It is especially difficult in the deep parts of the ocean.

History:

In 1999 a global array of 3000 profiling floats was proposed to the Oceanobs'99 conference, and in 2001 the first Argo floats were deployed. Inspired by the Greek myth of Jason and the Argonauts, the floats were given the name Argo to stress the way they would work with the new Jason satellite altimeter, launched in December 2001. It is cheap, effective and safe way to obtain data for the deep ocean, and brings no risk to the marine environment.

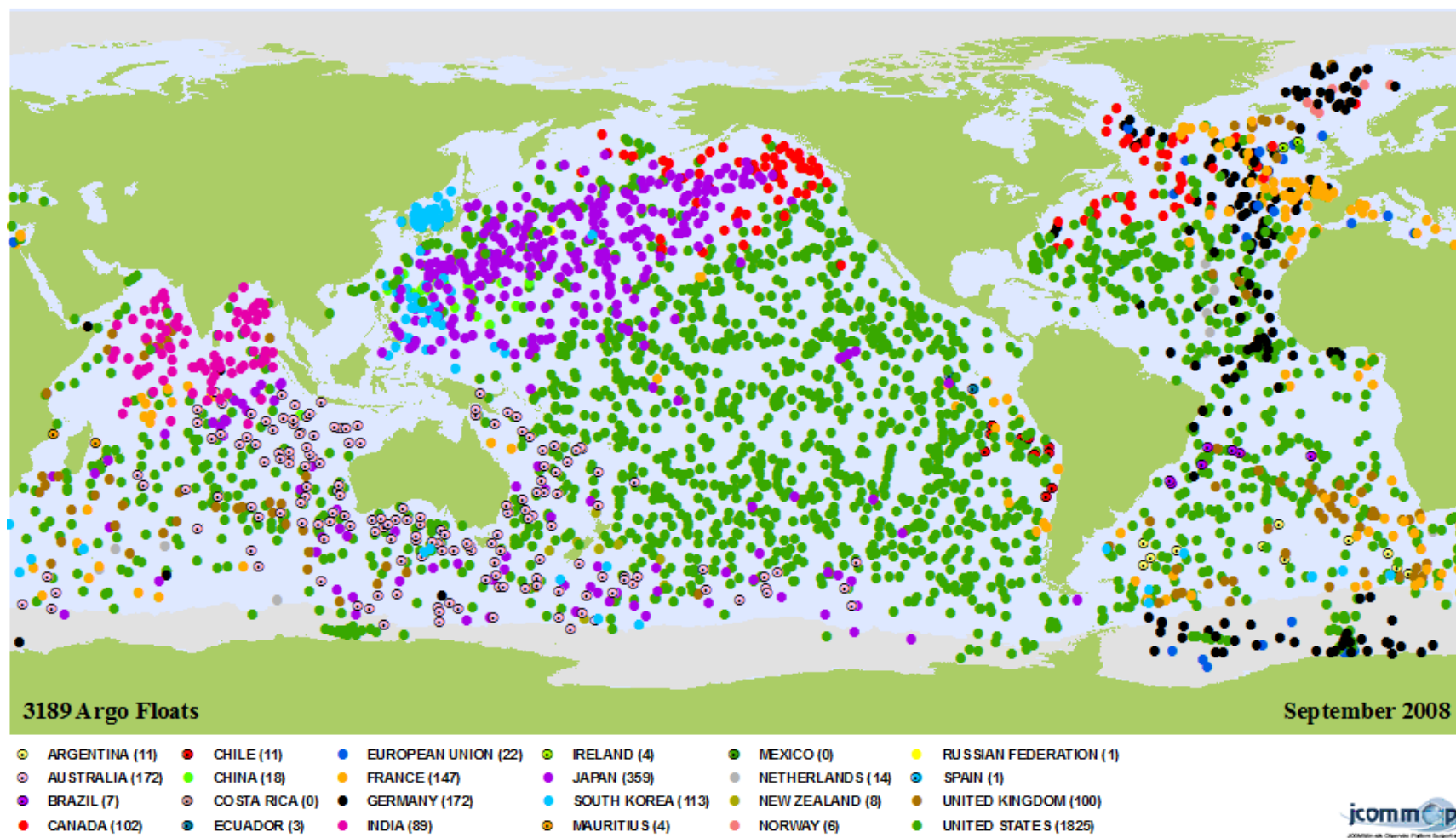


How is the Argo float working?





In 2007 Argo has reached the initial target of 3000 floats



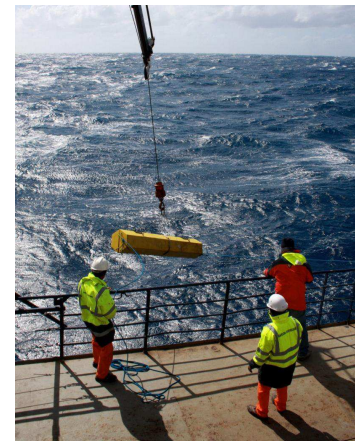
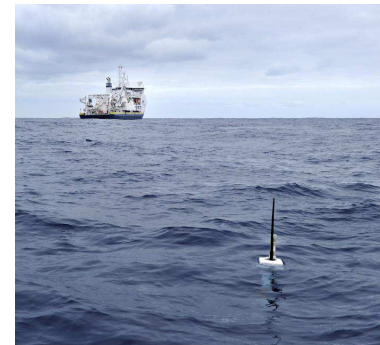


The Euro-Argo research infrastructure

Euro-Argo will consolidate the European component of the global network. Specific European interests also require increased sampling in 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.

The activity comprises:

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





The Euro-Argo preparatory phase (2008-2010)

Europe has realized the importance of deep ocean monitoring, thus in 2007 Euro-Argo was included in the ESFRI Roadmap for Environmental Sciences. The objective of Euro-Argo PP is to undertake the work needed to ensure that Europe will be able to deploy and operate an array of 800 floats on the long term and to provide a world classe service to the research and operational oceanography communities.

The consortium comprises 15 organisations from 12 European countries: France, Germany, United Kingdom, Netherlands, Spain, Italy, Ireland, Norway, Portugal, Greece, Poland, Bulgaria and is coordinated by IFREMER, France.

The expected outcome is an agreement for long term (10-20 years) operation of Euro-Argo.

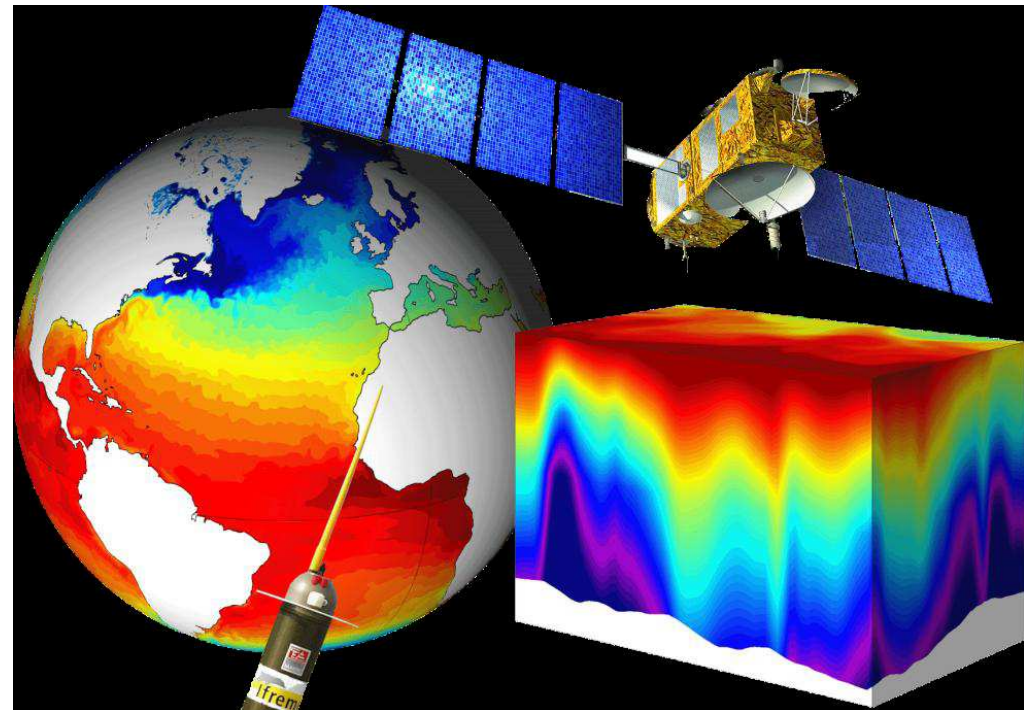


Participant no. *	Participant organisation name	Part. short name	Country
01 (Coord)	Ifremer/ Institut Français de Recherche pour l'Exploitation de la Mer	Ifremer	France
02	BSH/Federal Maritime and Hydrographic Agency	BSH	Germany
03	KDM/ Konsortium Deutsche Meeresforschung	KDM	Germany
04	NERC/Natural Environment Research Council	NERC	United Kingdom
05	Met Office	UKMO	United Kingdom
06	KNMI/Royal Netherlands Meteorological Institute	KNMI	Netherlands
07	IEO/Instituto Español de Oceanografía	IEO	Spain
08	OGS/Istituto Nazionale di Oceanografia e di Geofisica Sperimentale	OGS	Italy
09	MI/Marine Institute	MI	Ireland
10	IMR/Institute of Marine Research	IMR	Norway
11	SHOM/ Service Hydrographique et Océanographique de la Marine	SHOM	France
12	University of Lisbon/Institute of Oceanography	FFCUL	Portugal
13	HCMR/Hellenic Centre for Marine Research	HCMR	Greece
14	IOPAS/Institute of Oceanology Polish Academy of Sciences	IOPAS	Poland
15	USOF/University of Sofia, Bulgaria	USOF	Bulgaria



Argo data are an important step towards operational oceanography and tool for GMES Marine Core Services (MSC)

Argo is the single most important in-situ observing system required for the GMES Marine Core Service (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





The efforts so far has brought agreements at partners' national levels for comitment to maintain the Euro-Argo infrastructure until 2013:

FUTURE EUROPEAN COMMITMENTS (FLOAT DEPLOYMENTS) TO ARGO											
% numbers of floats (Argo + Argo-equivalent) deployed in year											
		2009		2010		2011		Euro-Argo infrastructure in place		2013	
Country	Funding source	core Argo	additional	core Argo	additional	core Argo	additional	core Argo	additional	core Argo	additional
Bulgaria	BulArgo programme				2		1		2		
Denmark							1				
France	Argo programme	65		65		60		60		60	
Germany	Argo programme	44	6	44	6	44	4	44	6	44	6
	Argo equivalents	5	2	12							
Greece	HCMR		1		1		5		5		5
Ireland	Research	4	6	4	6	4	2	4	2	4	2
Italy			3								
Netherlands	KNMI annual budget	4		4		4		4		4	
	KNKI infrastructure fun	5		5		5		5		5	
Norway	IMR			10		10		10		10	
Poland		2		3		3		3		3	
Portugal											
Spain		12	10	12		12					
United Kingdom	Argo programme	40		20	25	45		45		45	
EU			4			100		100		100	
European total		181	32	200	19	200	99	200	90	200	88
% of global array		13,9%		9,5%		6,0%		6,0%		6,0%	
		8,1%		11,0%		9,9%		8,4%		8,4%	
		0,6%		5,0%		20,0%		20,0%		20,0%	



At present Euro-Argo is applying for a legal status of European Research Infrastructure Consortium (ERIC). The structure will include a central facility (Central RI) and distributed national facilities. The central RI will provide the overall coordination for the programme and will organize and distribute the work in the national facilities.

The Euro-Argo ERIC application is expected to be validated at ministerial and European Commission levels by the end of 2010.

The Euro-Argo ERIC will be set up in 2011 based on member state contributions.

An additional long term European Commission (through GMES) funding must be ensured, however, so that Euro-Argo fulfills its objectives.



Bulgarian regional interests in environmental issues include the Black Sea, thus the monitoring program is a priority. We have the ambition to consolidate the efforts of all countries in the Black Sea region to contribute to the sea monitoring and marine environment preservation programs as part of Euro-Argo ERIC.





Two meeting, in 2008 in Sofia, and in 2009 in Varna, were organized aiming to promote and enlarge the Euro-Argo activity in the Black Sea region. Participants were from Bulgaria, Romania, Turkey, Russia, Ukraine and Georgia, as well as the Black Sea Commission.

During the second meeting the first Euro-Argo float was launched in Black Sea with the support of IFREMER







- In 2010 a new 3-years project funded by the Bulgarian Ministry of Education, Youth and Science was initiated to support the Black Sea national activities within Euro-Argo - the national research infrastructure BulArgo
- BulArgo is a consortium of 3 national institutions:
Institute of Oceanology, Varna (coordinator)
Sofia University „St. Kliment Ohridski“
National Institute of Meteorology and Hydrology, Sofia
- The Bulgarian Ministry of Education, Youth and Science agrees on the importance of the Black Sea monitoring programs, and has already officially expressed the ambition to support and promote Euro-Argo activities in the Black Sea region.