

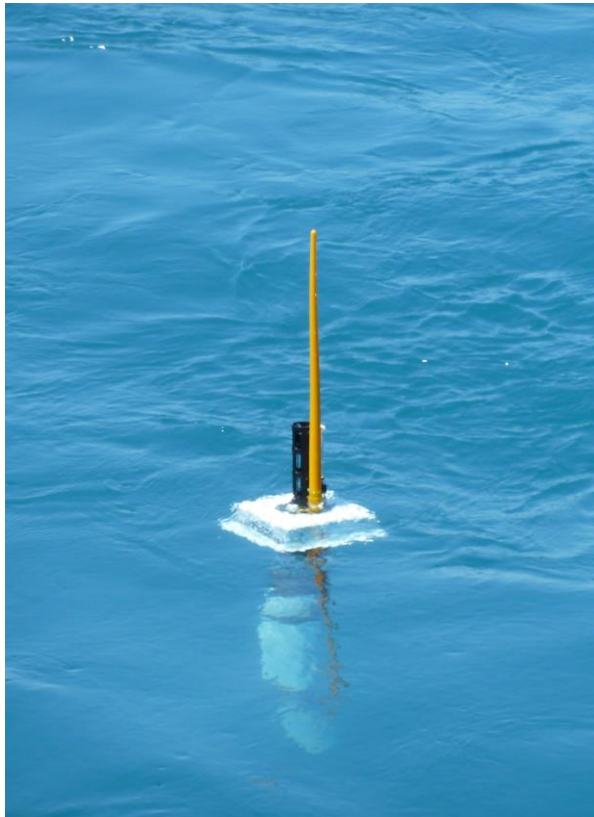


MedArgo: The Argo Regional Centre for the Mediterranean and Black seas

Pierre-Marie Poulain

OGS

Trieste, Italy

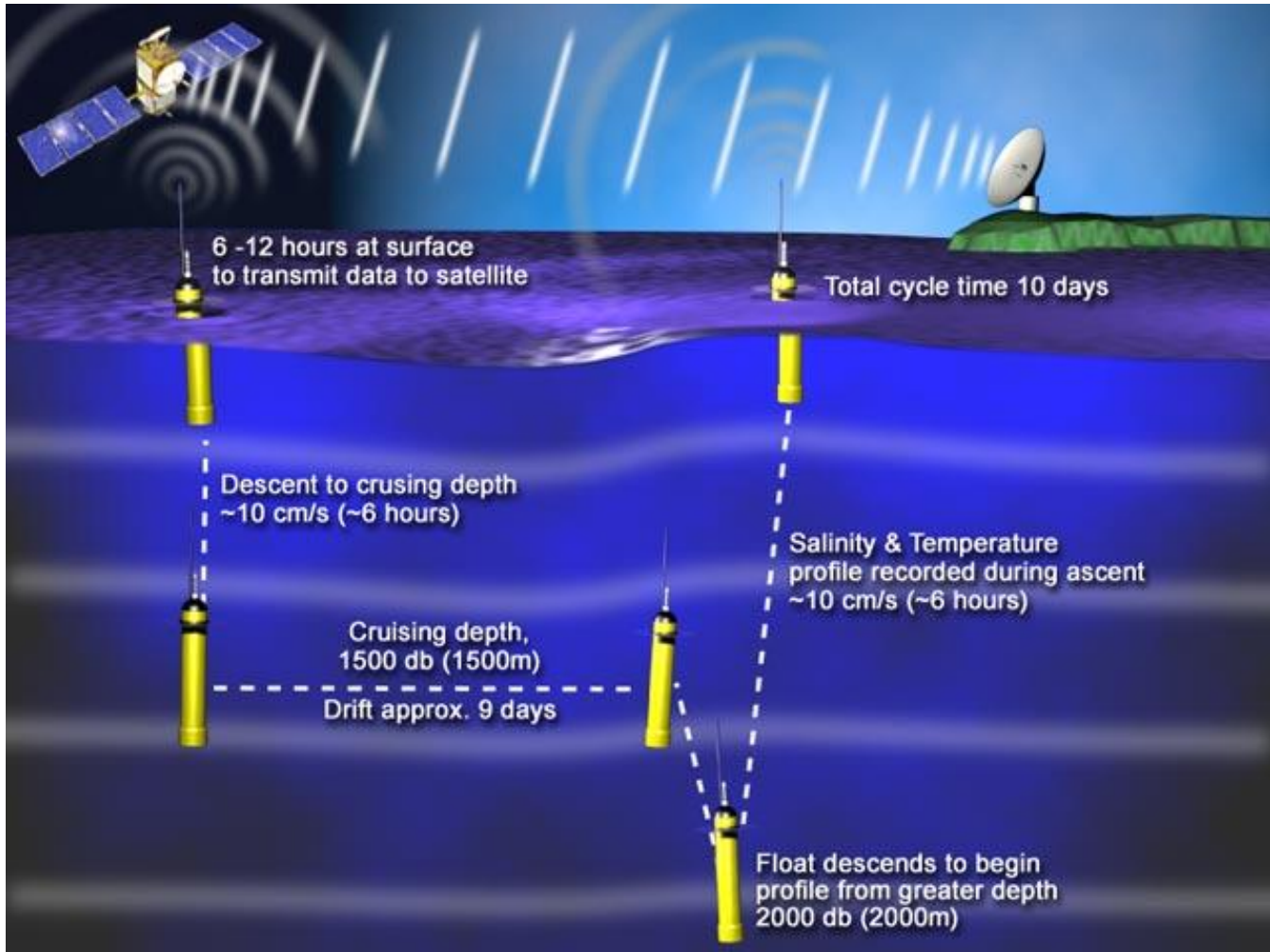


Outline:

- Argo & Euro-Argo
- Euro-Argo ERIC
- MedArgo
- Euro-Argo in Black Sea

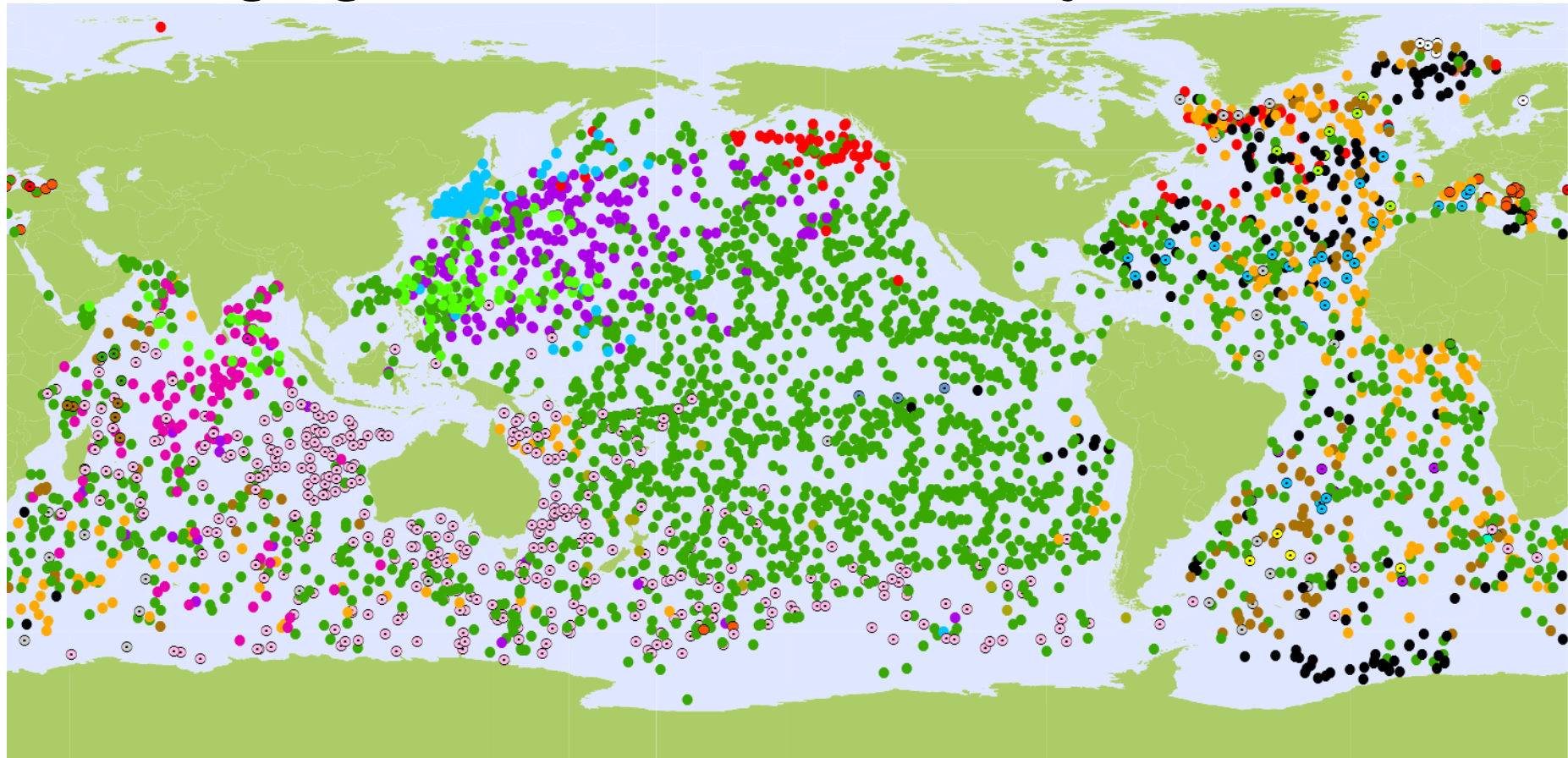


Argo : global ocean monitoring using profiling autonomous floats





The Argo global ocean observatory (> 3000 floats)



3634 Floats

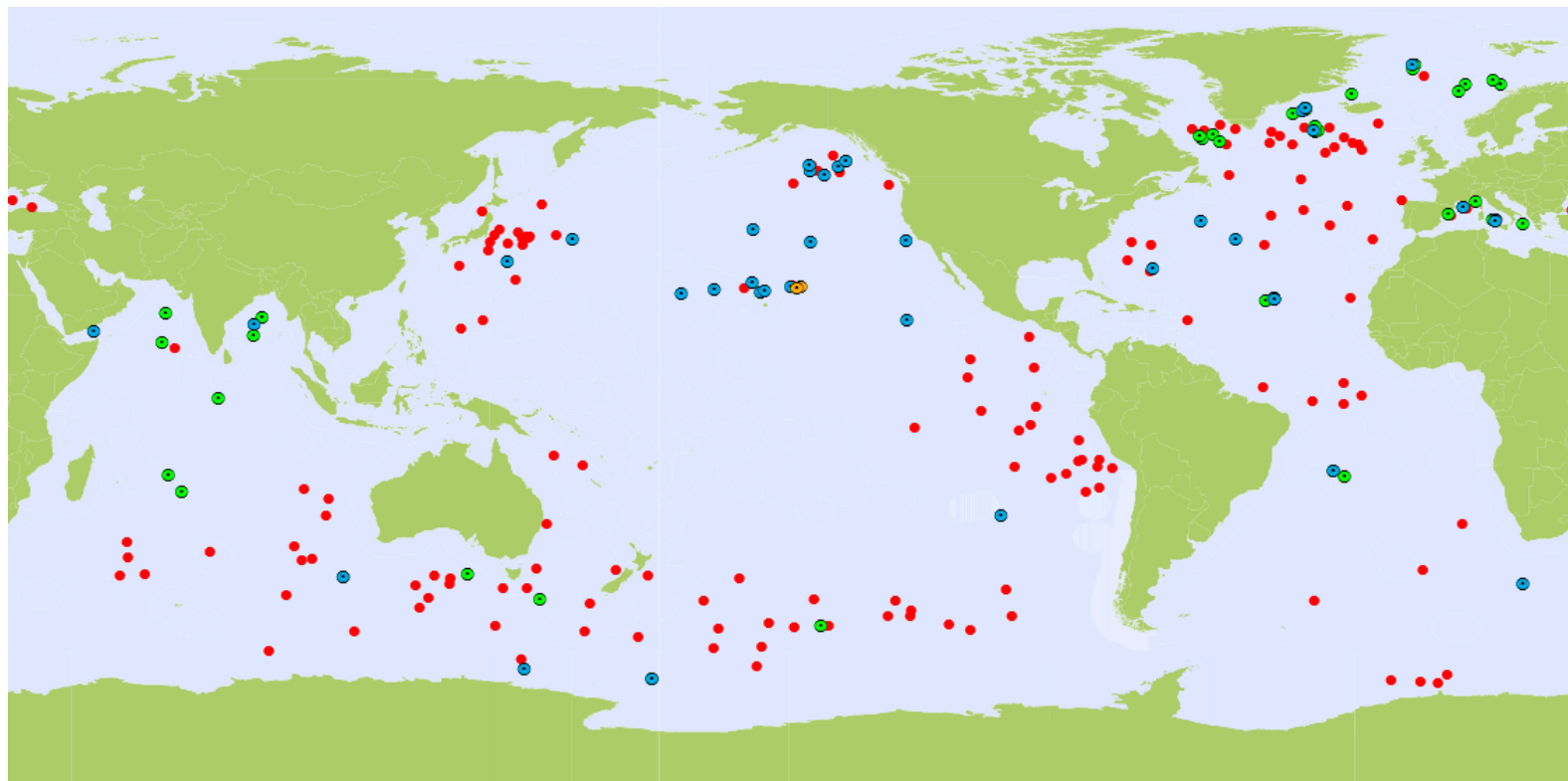
● ARGENTINA (4)	● CANADA (92)	● FRANCE (257)	● IRELAND (10)	● SOUTH KOREA (84)	● NORWAY (2)	● SRI LANKA (1)
● AUSTRALIA (379)	● CHINA (87)	● GABON (1)	● ITALY (19)	● MAURITIUS (6)	● POLAND (0)	● TURKEY (2)
● BRAZIL (6)	● ECUADOR (3)	● GERMANY (178)	● JAPAN (215)	● NETHERLANDS (27)	● SOUTH AFRICA (2)	● UNITED KINGDOM (137)
● BULGARIA (3)	● FINLAND (5)	● INDIA (109)	● KENYA (3)	● NEW ZEALAND (12)	● SPAIN (29)	● UNITED STATES (1 961)

July 2013





The Argo global ocean observatory (> 3000 floats) ~224 floats with biogeochemical sensors



Bio-Argo (224)

- Dissolved Oxygen (211)
- Bio-optics (47)
- Nitrate (37)
- pH (2)

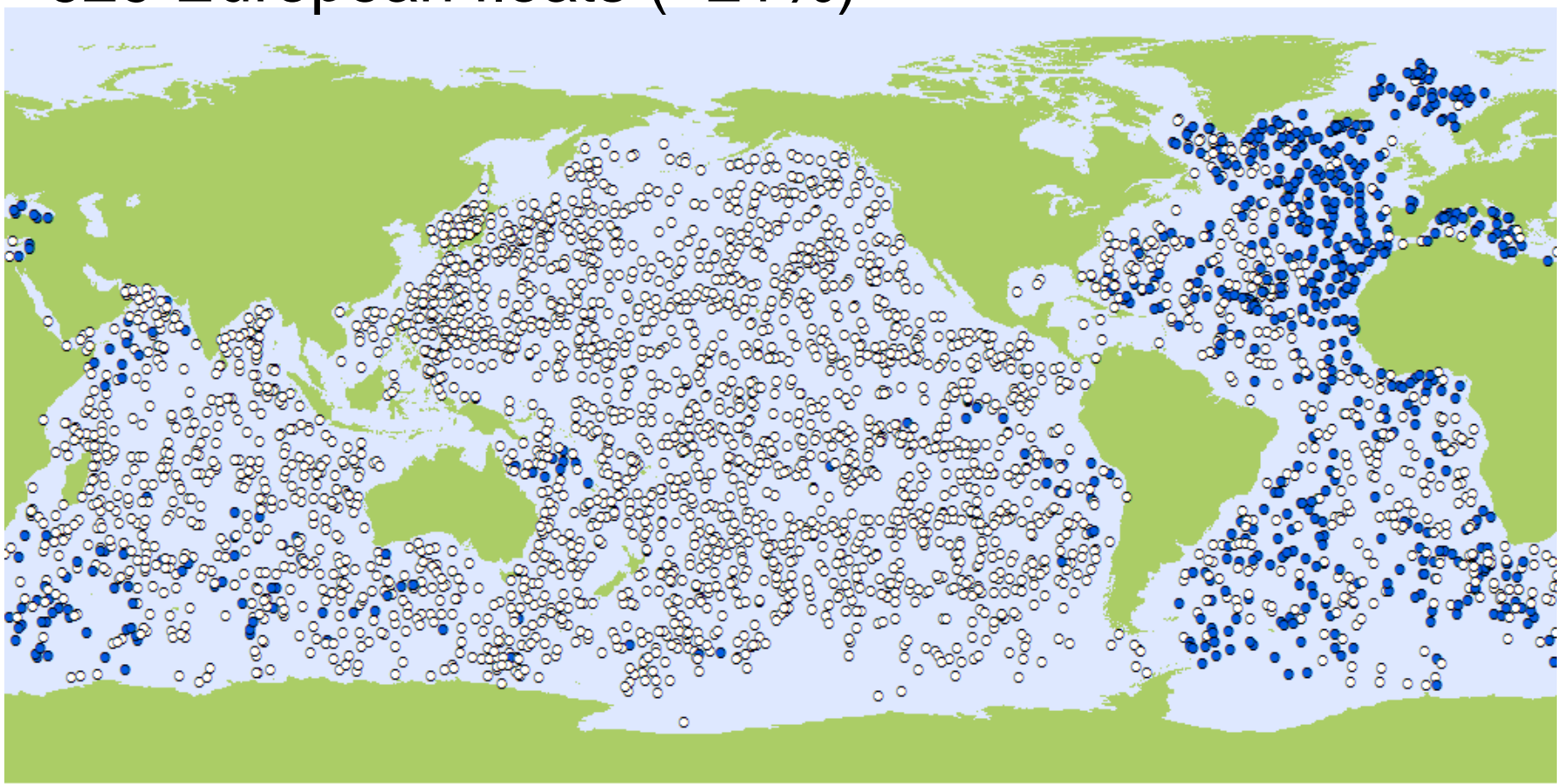
July 2013





The Argo global ocean observatory (> 3000 floats)

~629 European floats (~21%)



EuroArgo
629/3555

- BULGARIA (3)
- EUROPEAN UNION (0)
- FINLAND (8)
- FRANCE (228)
- GERMANY (185)
- IRELAND (12)
- ITALY (15)
- NETHERLANDS (38)
- NORWAY (3)
- POLAND (1)
- SPAIN (30)
- UNITED KINGDOM (139)

April 2013



EuroArgo: European contribution to the Argo global ocean observatory



- Included in ESFRI roadmap in 2006, along with EMSO (integration and complementary)
- Goal : Europe establishes an infrastructure to contribute a significant and sustained component to Argo (1/4 of Argo fleet, i.e. 800 active floats)
- Requirement : 250 floats per year including regional enhancements (about 50 floats in Nordic Seas, Mediterranean Sea and Black Sea)



EuroArgo Specific Objectives

- **Deploy, operate and maintain the array**
Coordinate operations at sea: logistics, ships, instruments
- **Data management**
Near-real time and delayed mode quality control
- **Facilitate data access to the scientific community**
Elaborate data products and synthesis (climatology, indicators on state of the global environment)
European excellence and expertise in climate research
- **Technological developments**
 - New sensors, new platforms, data transmission, upgrades
 - With European SME's





EuroArgo Preparatory Phase (€3M, FP 7) ***(Jan 2008 – Jun 2011, 12 countries, 15 partners)***

Main Objective : undertake the work needed to ensure that by 2012 Europe will be able to:

- Deploy, maintain and operate an array of 800 floats worldwide (deployment of 250 floats per year).
- Provide a world-class service to the research (climate) and environment monitoring (e.g. GMES) communities.

Main expected outcomes :

- Agreement for long term (10-20 years) operation of Euro-Argo (financial, governance, organisation, technical) by Member States.
- Agreement with EC (GMES) for additional long term EC funding
- Most technical and organizational issues to be solved
- Links with international structure

Follow on FP7projects:

SIDERI, Dec 2011 – Nov 2013 (€1M)

E-AIMS, Jan 2013 – Dec 2015 (€2M)

Consortium Agreement:

To carry on the Euro-Argo activities in the Transition Phase (July 2011 – Sep 2013)





EuroArgo Infrastructure Costs (in k€)

Given existing national contributions (from €4M to €5M /year), a direct EC funding (GMES , DG Research) of €3.3M/year focused on pan European activities is necessary.

Category	Member States	EC	TOTAL
Float procurement			
Global	1400	1400	2800
Regional	850		850
Operations			
Telecommunications	160	160	320
Personnel for management/coordination	500		500
Personnel for technical/logistic support	600		600
Misc (e.g. freighting)	50		50
Equipment and consumables	50		50
Dedicated ship time		300	300
Data management (part of GMES Marine Core Service)			
Personnel	950	950	1900
Equipment, other	50	50	100
Euro-Argo central infrastructure (CI)			
Personnel for management/coordination	200		200
Personnel for technical/logistic support		300	300
Missions (users workshops, board, council), equipment, etc	50	50	100
International infrastructure support			
Support to Argo Information Centre		40	40
Support for Argo Project Office/Director		30	30
Total without MCS	3850	2280	6140
Total with MCS	4860	3280	8140



EuroArgo ERIC

Partners : Thirteen Member States

- **Seven Founding members:** France, Germany, United Kingdom, Italy, Netherlands, Greece, Bulgaria and Finland.
- **One Observer:** Poland.
- **Four future members:** Spain, Portugal, Ireland and Norway.





MedArgo

MedArgo: Argo Regional Center & distributed RI of EuroArgo



MedArgo

MedArgo is the official Argo Regional Centre (MED-ARC) for the Mediterranean and Black Seas. Will become an official distributed RI of EuroArgo.

MedArgo's main responsibility is the overall coordination of profiling float operations in the Mediterranean and Black Seas.

As such, MedArgo serves as an Delayed Mode Operator (DMO) for the delayed-mode processing of the Argo T&S data with specific QC tailored for the Mediterranean Sea.

MedArgo conducts the following activities:

- 1) *the coordination of float deployments in the Mediterranean and Black Seas;*
- 2) *the preparation and distribution of Mediterranean and Black Sea Argo products and services;*

It is part of the Italian "Gruppo Nazionale di Oceanografia Operativa" ([GNOO](#)) and of the Mediterranean Operational Oceanography Network ([MOON](#)). Partial support is provided by the EuroArgo, [MyOcean](#) and [Argo-Italy](#) projects.

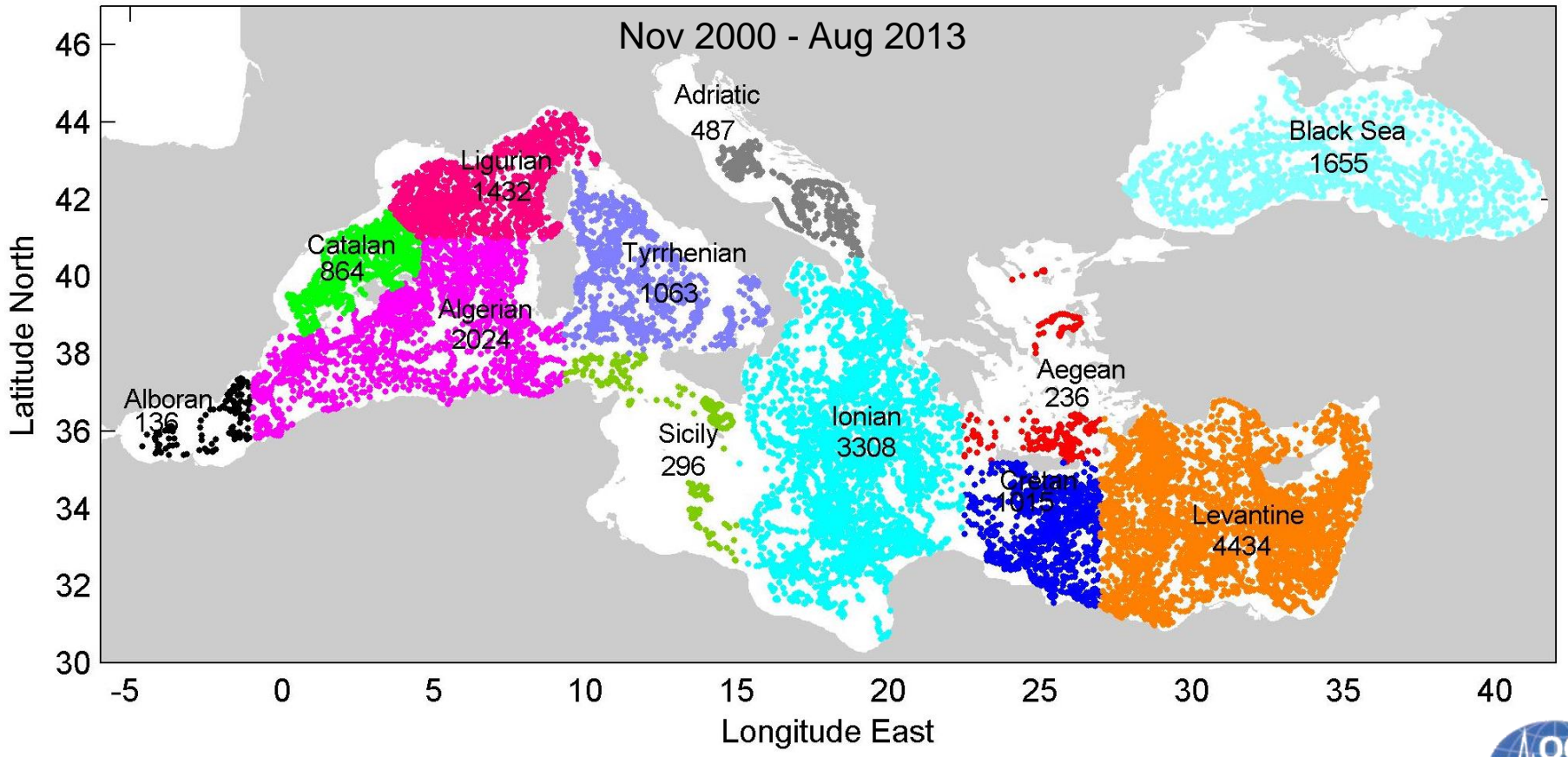
<http://nettuno.ogs.trieste.it/sire/medargo>





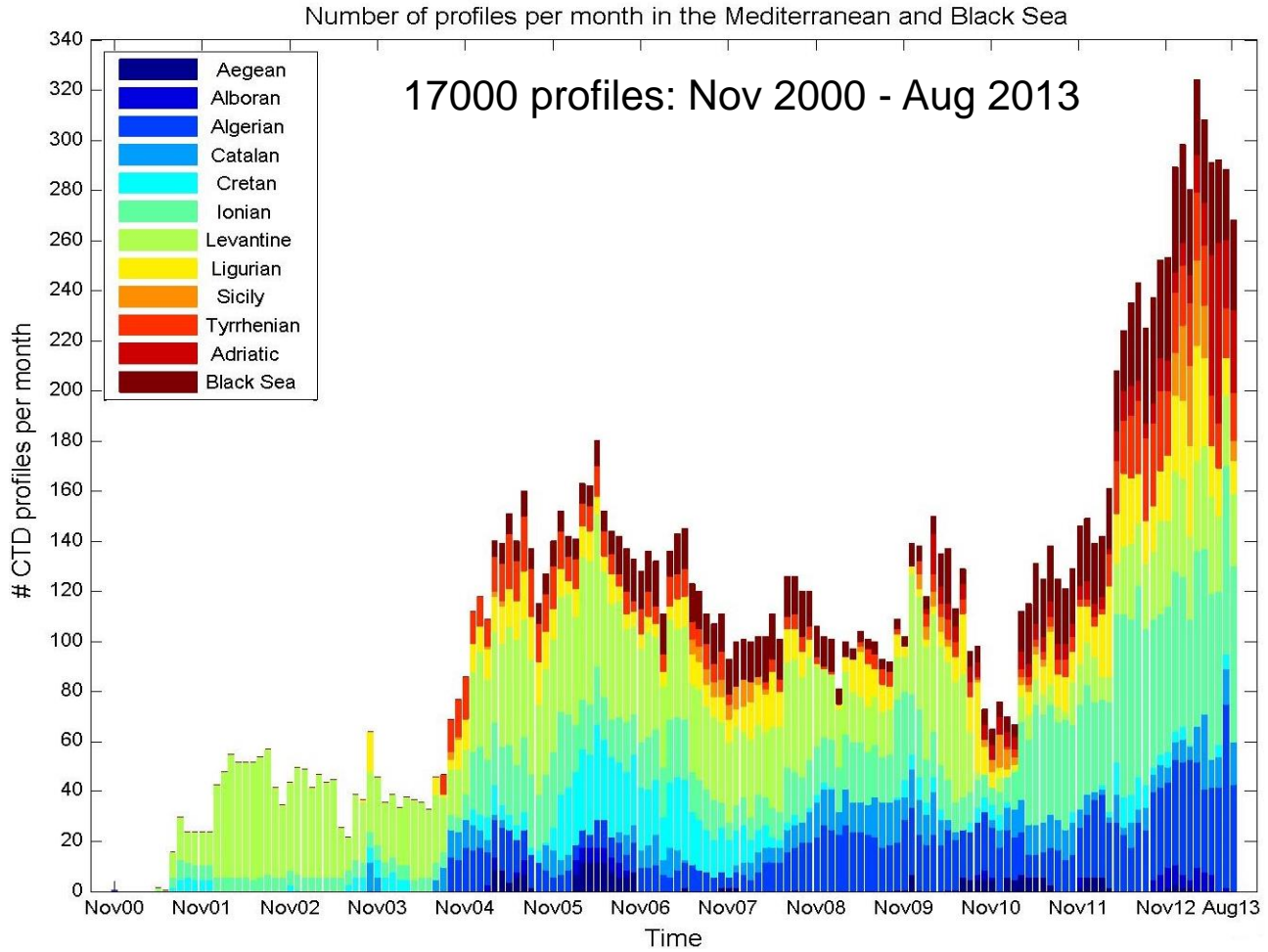
MedArgo: Argo Regional Center & distributed RI of EuroArgo

Number of float CTD profiles (17000) in the Mediterranean and Black Sea





MedArgo: Argo Regional Center & distributed RI of EuroArgo



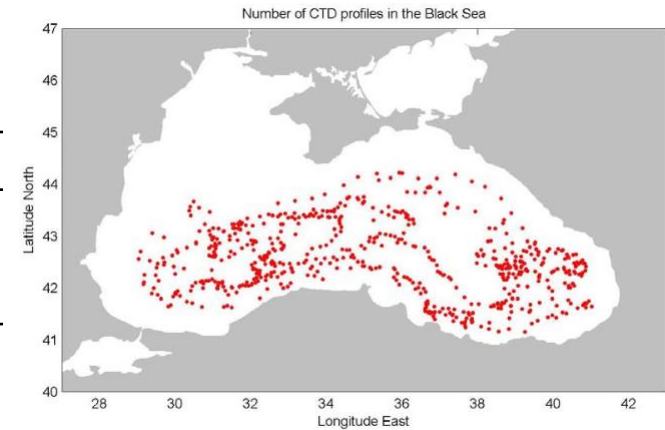
MARES2020, Golden Sands Resort, Bulgaria, 18 Sep 2013





Argo in Black Sea (2005-2009)

Country	Floats	Profiles	Type	Comments
Turkey Ukraine USA	4	626	APEX, CTD	

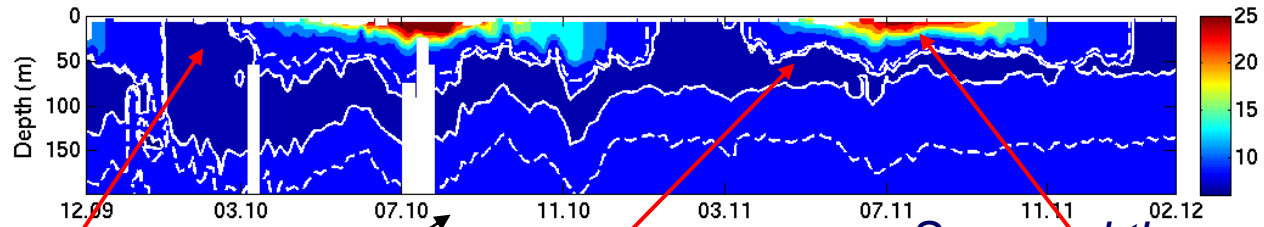


Euro-Argo in Black Sea (2009-2013)

Country	Floats	Profiles	Type	Comments
Germany	2	–	NEMO, CTD, DO	
Italy	4	246	Arvor-I, CTD	
Bulgaria	3	524	Apex, CTD, DO	
Turkey	2	7	PROVOR, CTD, DO	Recently deployed (Aug 2013)
France	1	234	PROVOR, CTD	
Total	12			



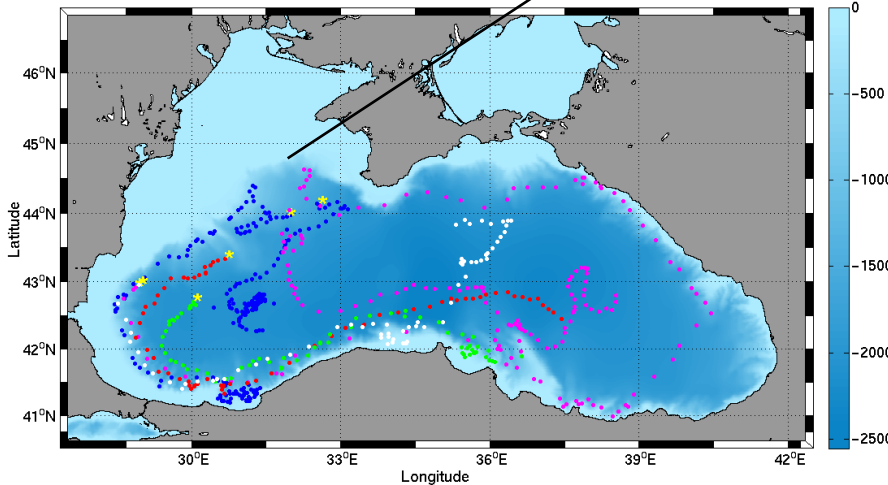
EuroArgo in Black Sea (some scientific results)



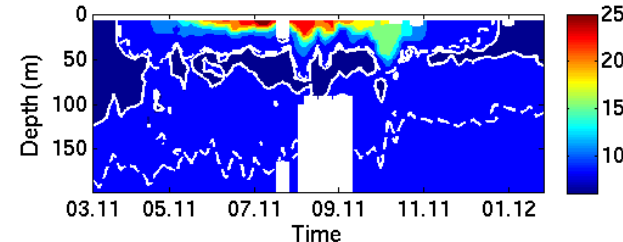
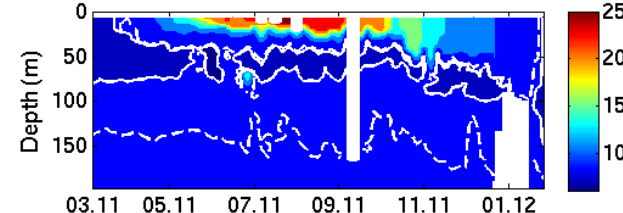
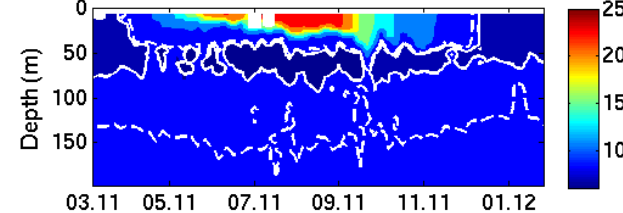
Cold water mass formation

CIL

Seasonal thermocline

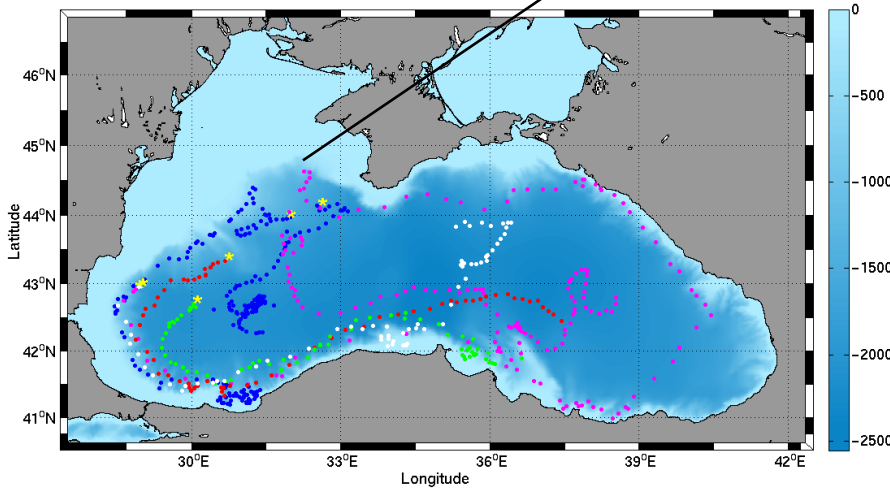
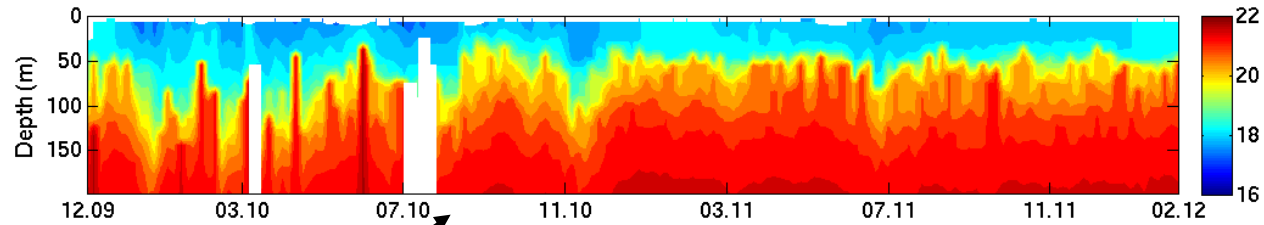


Temperature

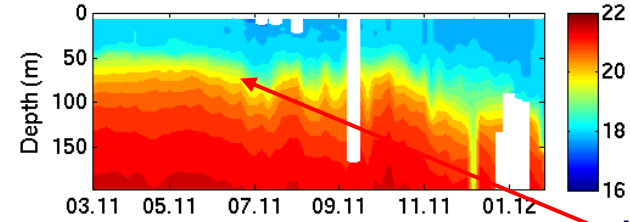
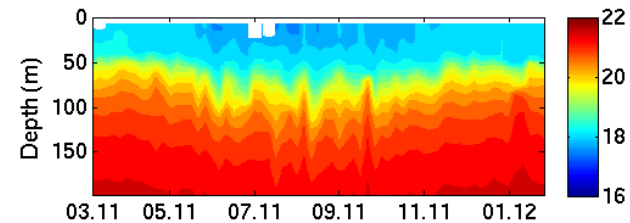




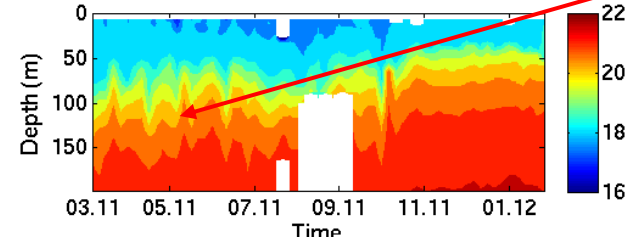
EuroArgo in Black Sea (some scientific results)



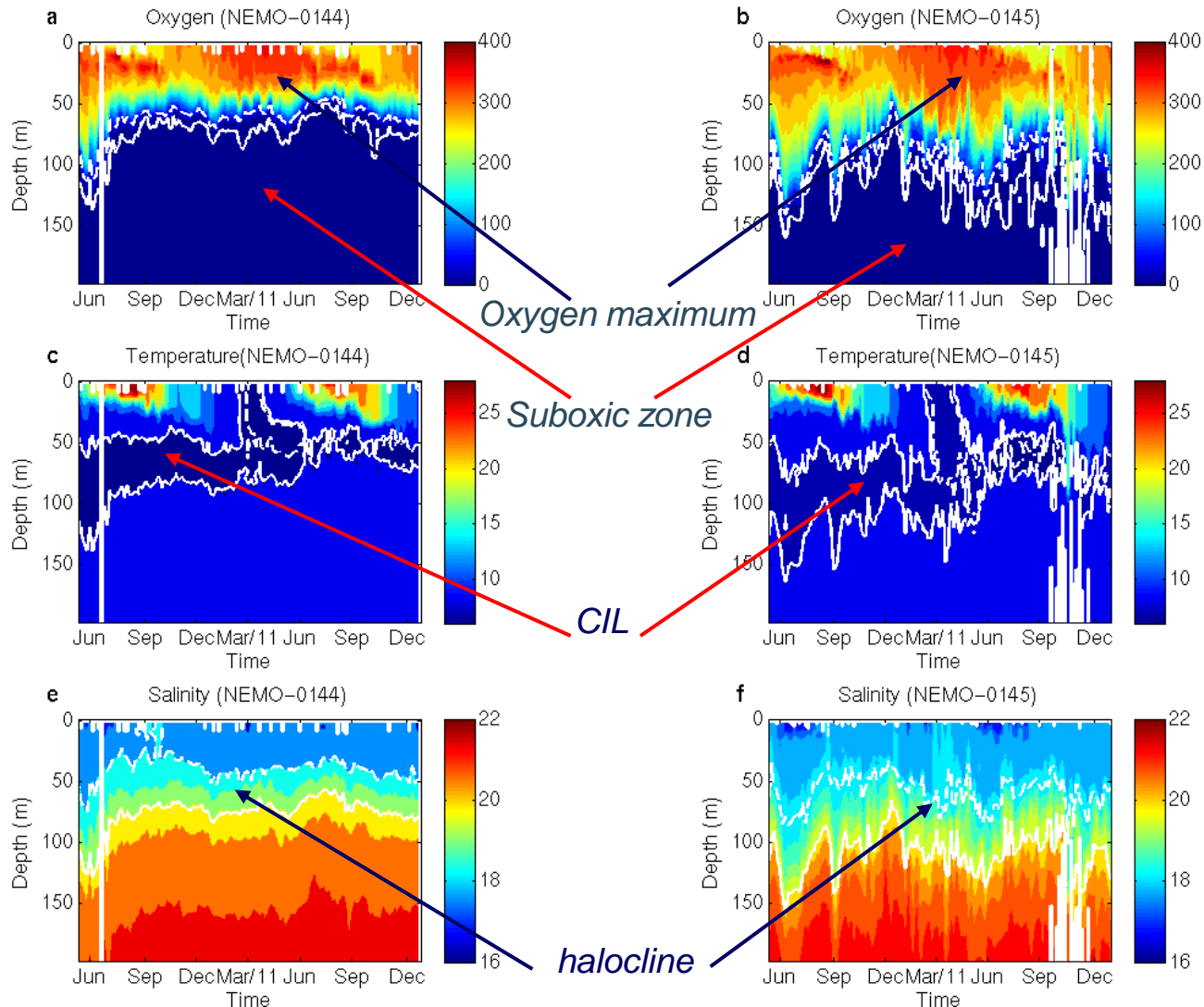
Salinity



Halocline

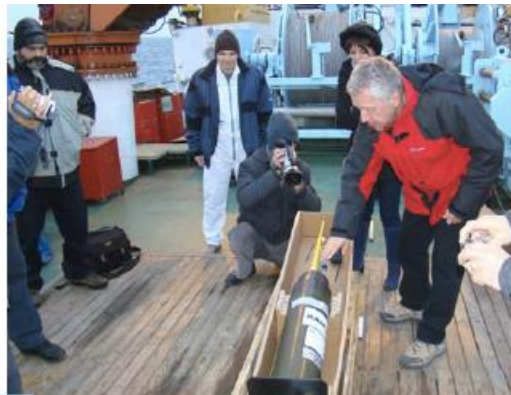


EuroArgo in Black Sea (some scientific results)



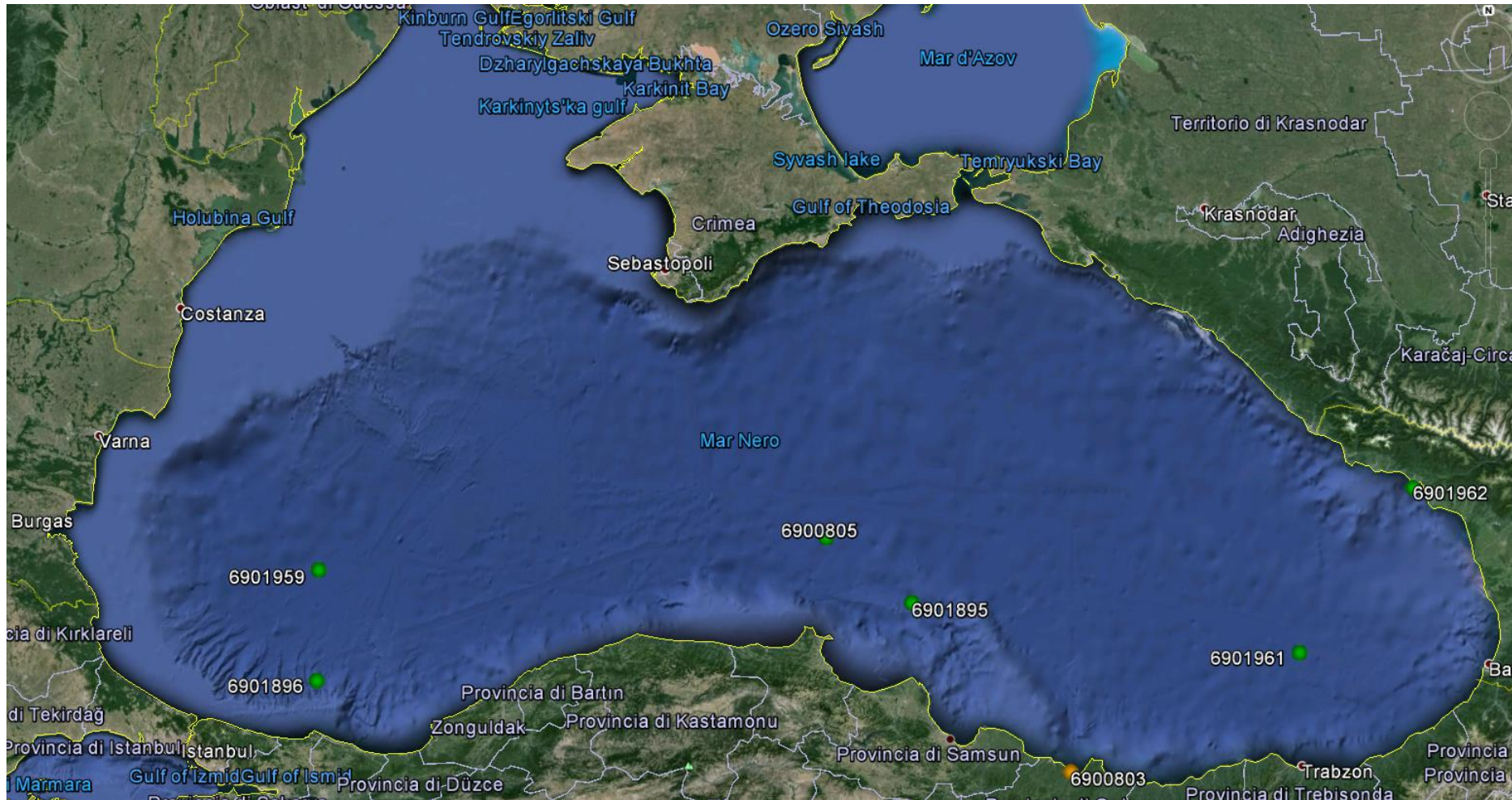
EuroArgo in Black Sea (Plans for 2013-2014)

Country	Floats	Type	Comments
Italy	3	Arvor-I, CTD	Argo-Italy, Deployed by Bulgaria
Romania	1	Nemo, CTD, optics, DO?	Bought with Perseus funding
Ukraine	1	Arvor-I, CTD, DO?	Bought with Perseus funding
Bulgaria	1 1 2	Arvor-L, CTD Arvor-I, DO Provbio, nut	BulArgo Bought with Perseus funding E-AIMS
Total	9		



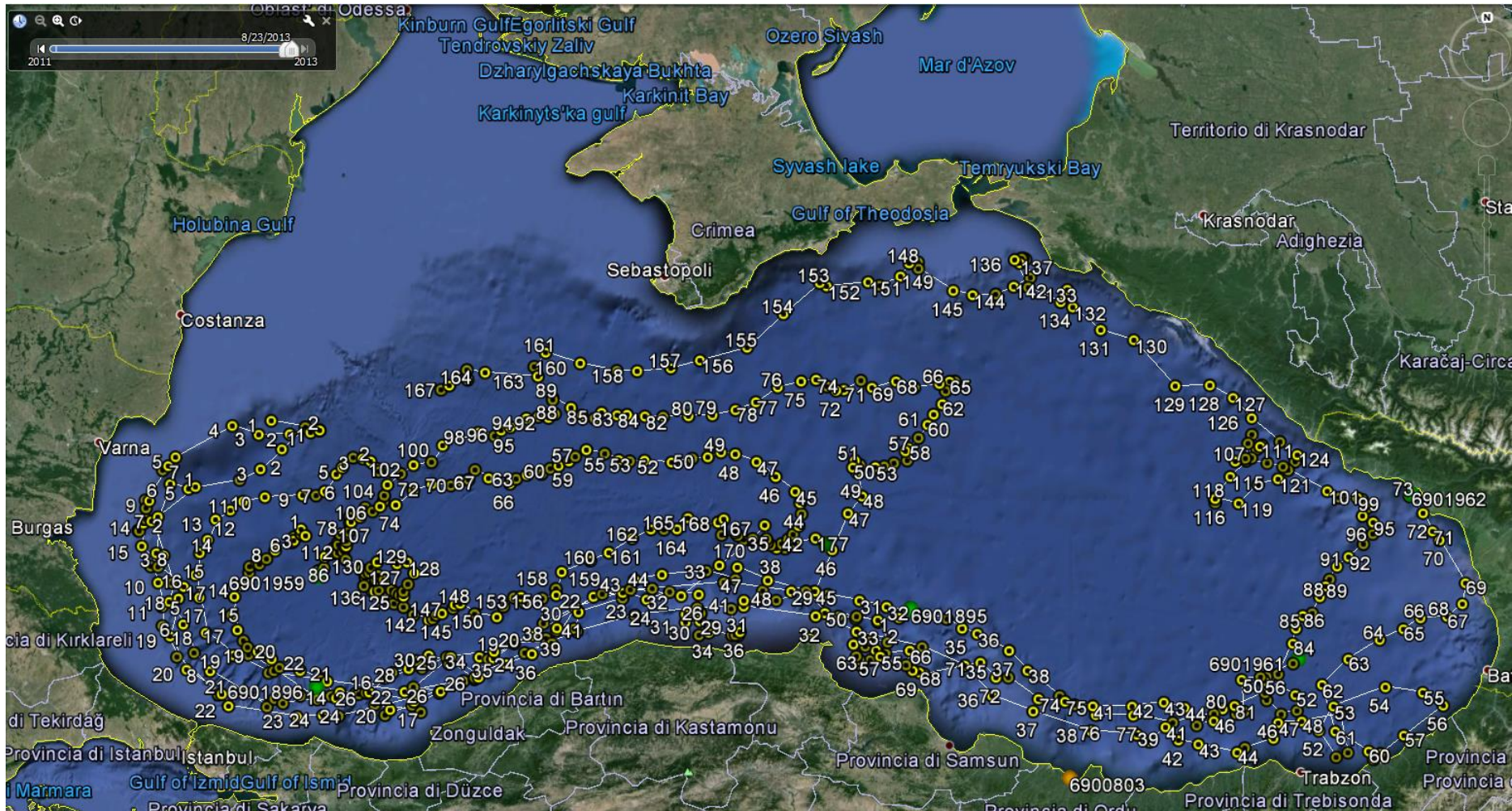


EuroArgo in Black Sea today!





EuroArgo in Black Sea today!





More details about Argo (float technical info; data processing, archiving and availability) after the coffee break!

Acknowledgments

EuroArgo ERIC member: Bulgaria

- IO-BAS
- University of Sofia

New Argo partners:

- Turkey
- Romania
- Ukraine



Thanks for your attention ... any questions?