Development of the national research infrastructure BulArgo as a bulgarian component of the ERIC Euro-Argo: present state and perspectives

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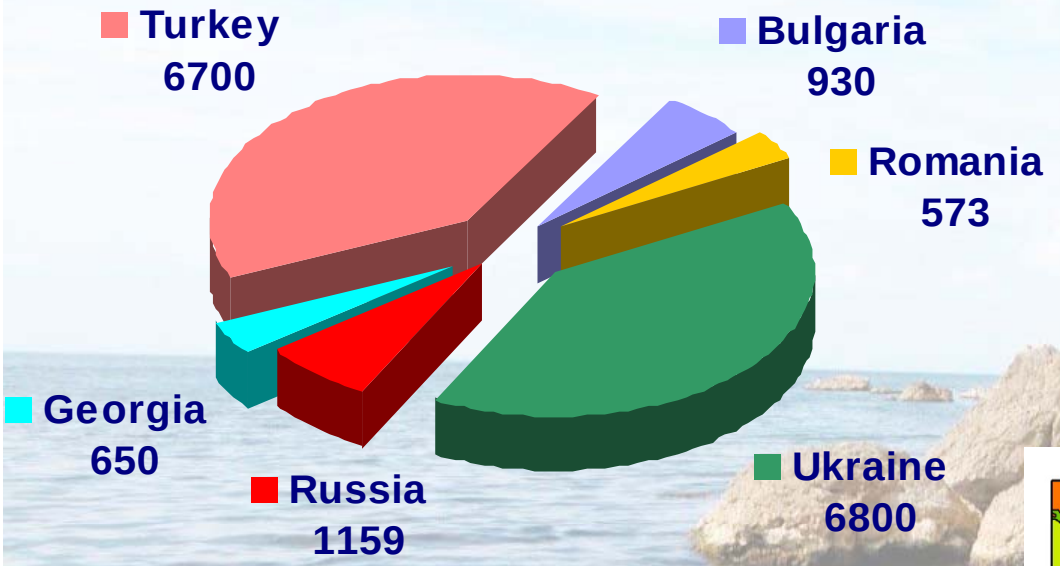
Outline

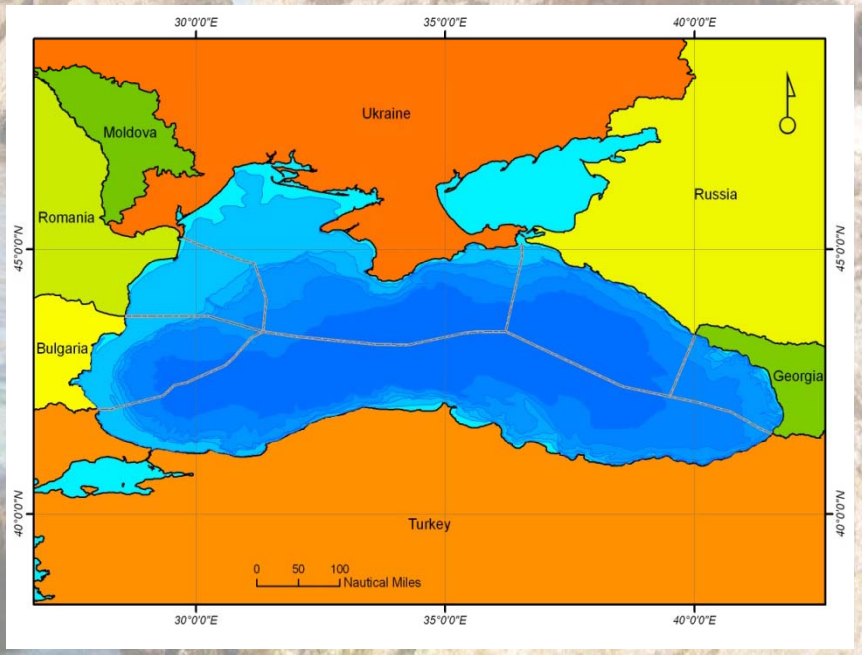
1. The need of Argo data
2. Monitoring programs in the Black Sea
3. BulArgo – background
4. BulArgo – planned activity
5. Inventory of the existing data in the Black Sea
6. Conclusions

Why we need Black Sea Argo Program?

- ✓ **Lack of oceanographic data**
- ✓ **Monitoring and forecasting systems need in-situ data**
- ✓ **Marine industry needs marine products (shipping, fishery, tourism)**
- ✓ **Safety at sea needs real time data and forecasts (search and rescue, oil spills)**

Black Sea Coastal Population





DEVELOPMENT OF THE BLACK SEA MARINE OBSERVING AND FORECASTING SYSTEM

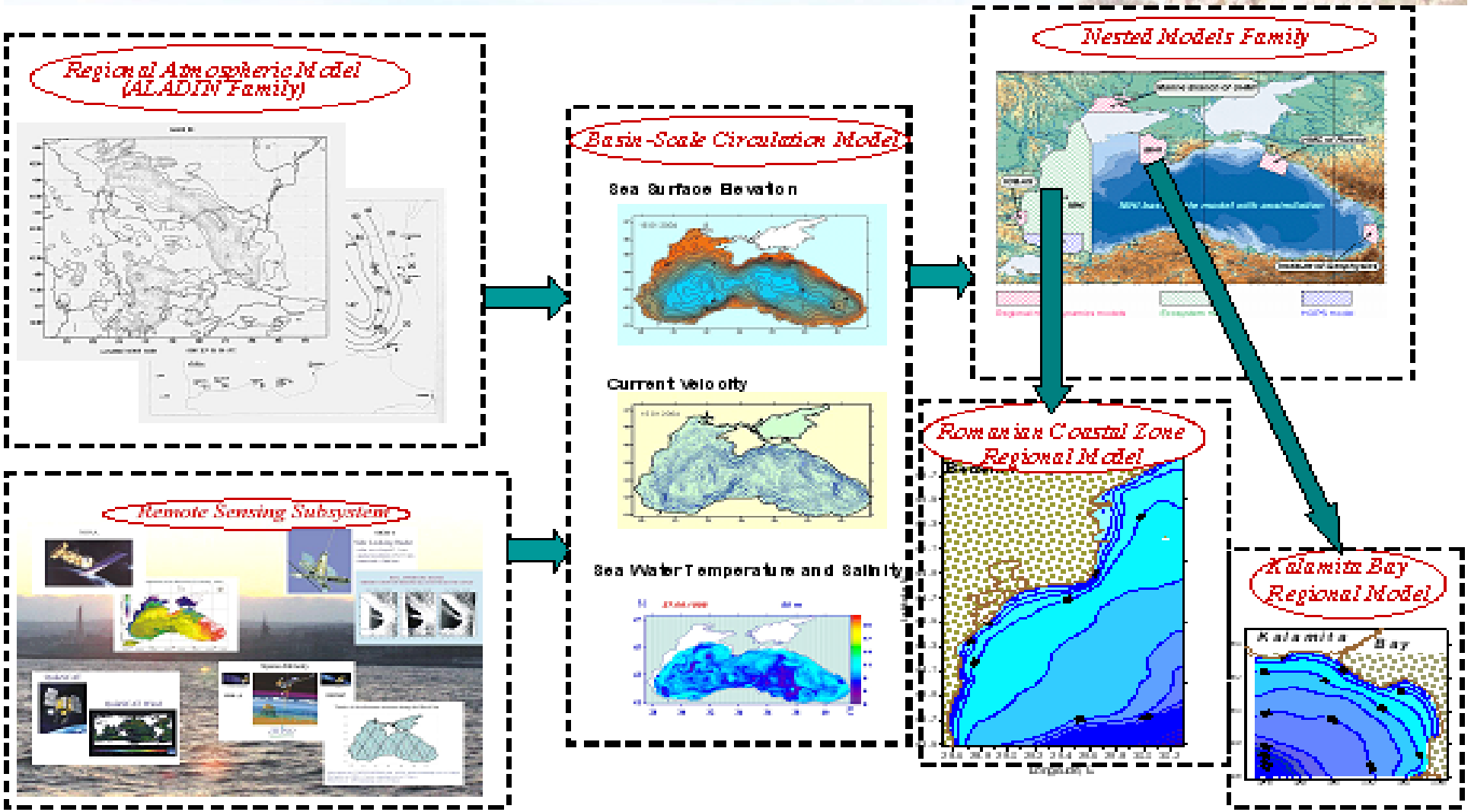
ARENA (2003-2005) SET-UP OF INITIAL NOWCASTING SYSTEM OF THE BLACK SEA CIRCULATION AND ECOSYSTEM STATE

ASCABOS (2006-2008) Advance in the black sea regional efforts to build and sustain the operational status of oceanographic services

ECOOP (2007) Preoperational Black Sea modelling and forecasting system

MyOcean (2009) Black Sea forecasting system and In-situ data system in operational mode

INITIAL NOWCASTING SYSTEM OF THE BLACK SEA CIRCULATION AND ECOSYSTEM STATE



BLACK SEA ARGO ACTIVITIES

Black Sea Deployments per year

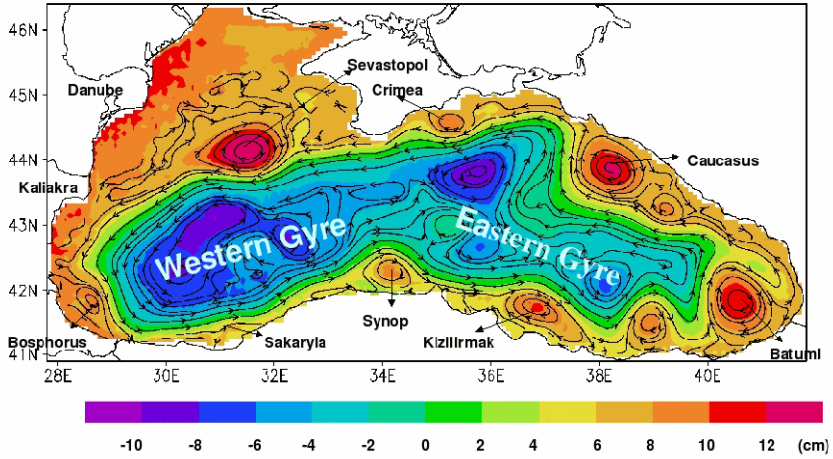
2002 : 3 (US/Turkey) = 3

2005 : 2(US/Turkey) = 2

2006 : 2 (US/Turkey) = 2

2009: 1 (France/Bulgaria)

2010: 1 (France)



TOTAL: 9 FLOATS of which 2 working

According to the experts' opinion 15 floats have to operate in order to describe adequately the Black Sea characteristics.

BULARGO

In 2010 the BulArgo project was initiated in Bulgaria, funded by the Bulgarian National Science Fund and the Ministry of Education, Youth and Science (~100 000 euro)

The Ministry of Education, Youth and Science supports the Argo program in the Black Sea and the Minister expressed officially the willingness of Bulgaria to become a full member of ERIC Euro-Argo

BULARGO PROJECT GOALS

To develop national research infrastructure as a Bulgarian component of the Euro-Argo network.

To increase sources of the Black Sea in-situ data and to improve quality of local in-situ products and forecasts

To promote international collaboration towards establishment of a Black Sea Argo program

PARTNERS

Institute of Oceanology – BAS, Varna

National Institute of Meteorology and Hydrology – BAS

Sofia University “St. Kliment Ohridski”

Research Tasks

Task 1. Project co-ordination and management
Task 2. Communication
Task 3. Float technology
An investigation of the likely floats evolution over the coming years and the most appropriate strategy for the Black Sea;
Task 4. Float deployment
The deployment of 6 floats during the 2 years of project execution.
Task 5. Data management system
Set-up of database and tools for data storing and archiving.
Task 6. Application of Argo data
Integration of Argo data into Black Sea climatology;
Validation of SST satellite images using Argo data;
Argo data assimilation in climate forecast models;
Detect and attribute climate change effects on the Black Sea ecosystem.
Task 7. Development of system for disseminating Argo data products

Black Sea Argo Regional Activities

2008: Work meeting - Sofia, Bulgaria, 7 October 2008: Development of a Black Sea branch of the European Scientific Research Infrastructure Euro-Argo

2009: The project RIFI: evaluate the regional SE impact of Euro-Argo

2009: EuroArgo Black Sea Workshop, Varna, Bulgaria, 7-8 December

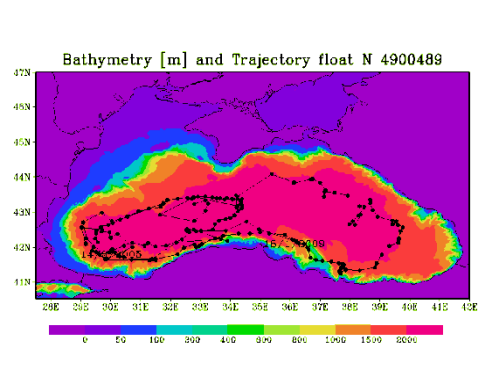
2010: BulArgo presented at the GMES forum in Sofia in March 2010

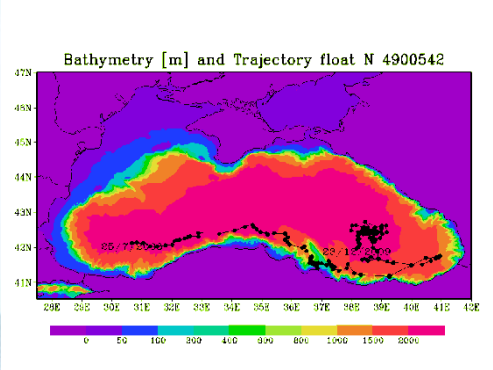
2010: 3 floats will be deployed (September 2010)

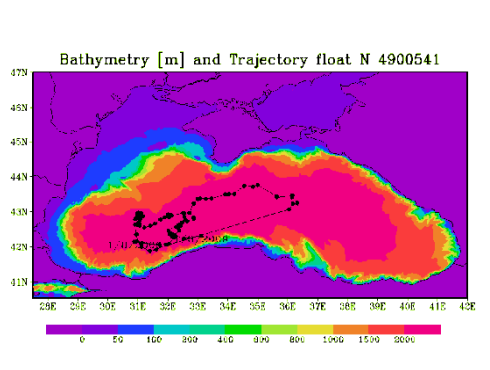
2010: Short Course on using the Argo data in the Black Sea (to be held in September 2010)

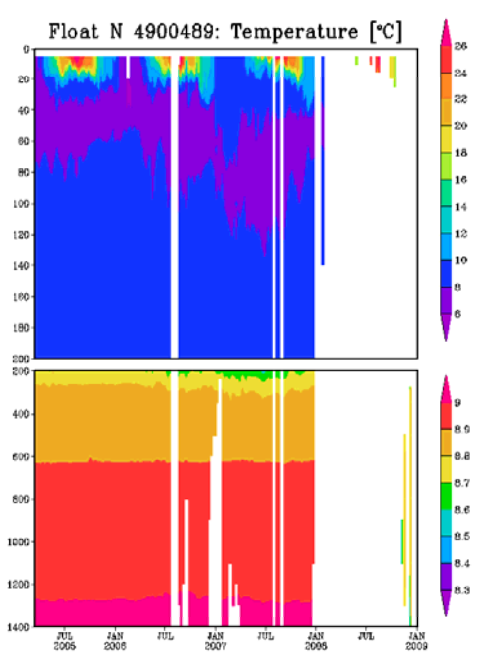
2010: Presenting BulArgo at BLACK SEA 2010 Conference

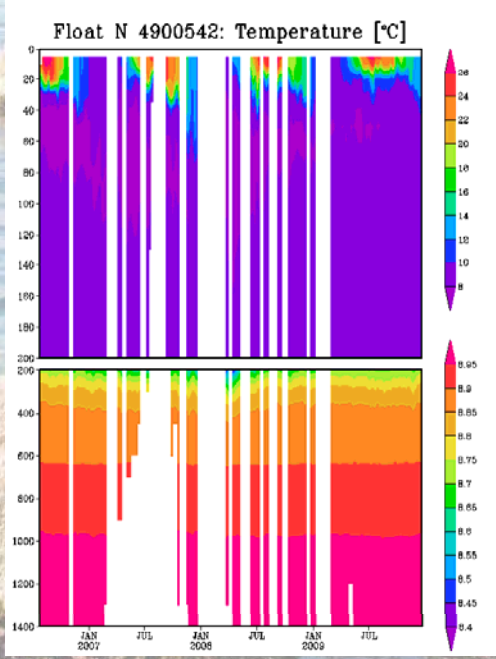
The data referred to the Black Sea in the database of Coriolis centre are extracted and explored. There are 6 floats found since 2005 of which 4 are considered already dead. On average the lifetime of the floats is about 3 years

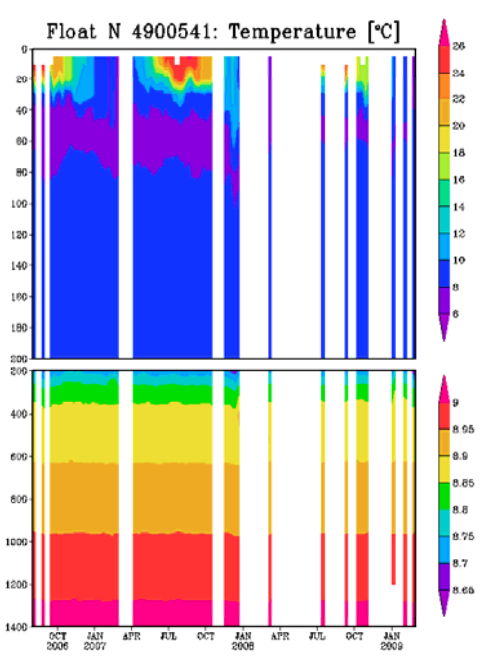




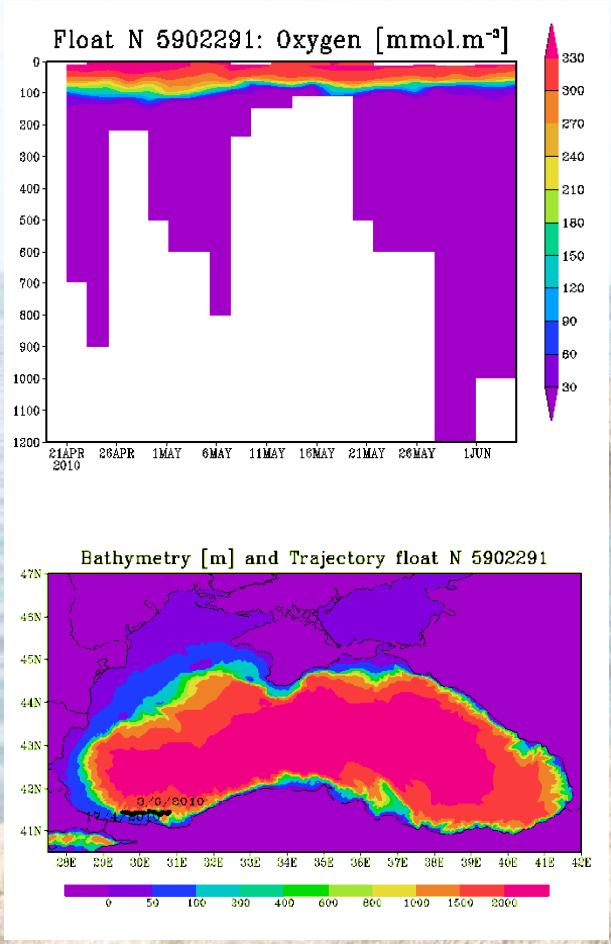


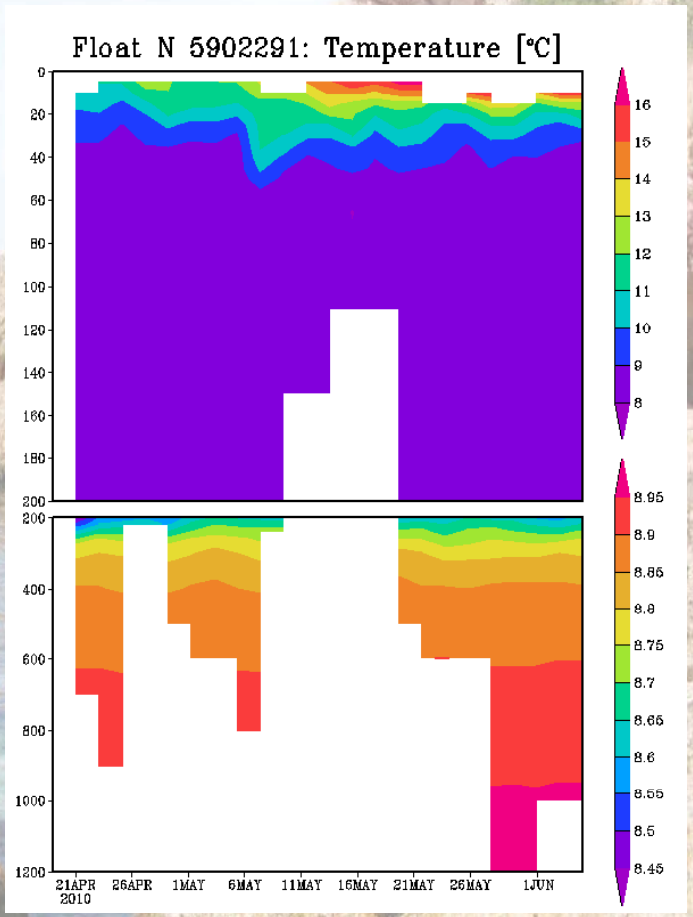






Since April 2010 there is also a float measuring the oxygen concentration.





CONCLUSIONS

- **Some achievements on political level but still cooperation between Black Sea countries is an important element for the success of Black Sea Argo initiative**
- **We need stronger scientific cooperation on local and European level to achieve sustainable operational status of ARGO project in the Black Sea (lessons learned)**
- **More national and international efforts are needed towards improving Black Sea operational In-situ data system and oceanographic services**