

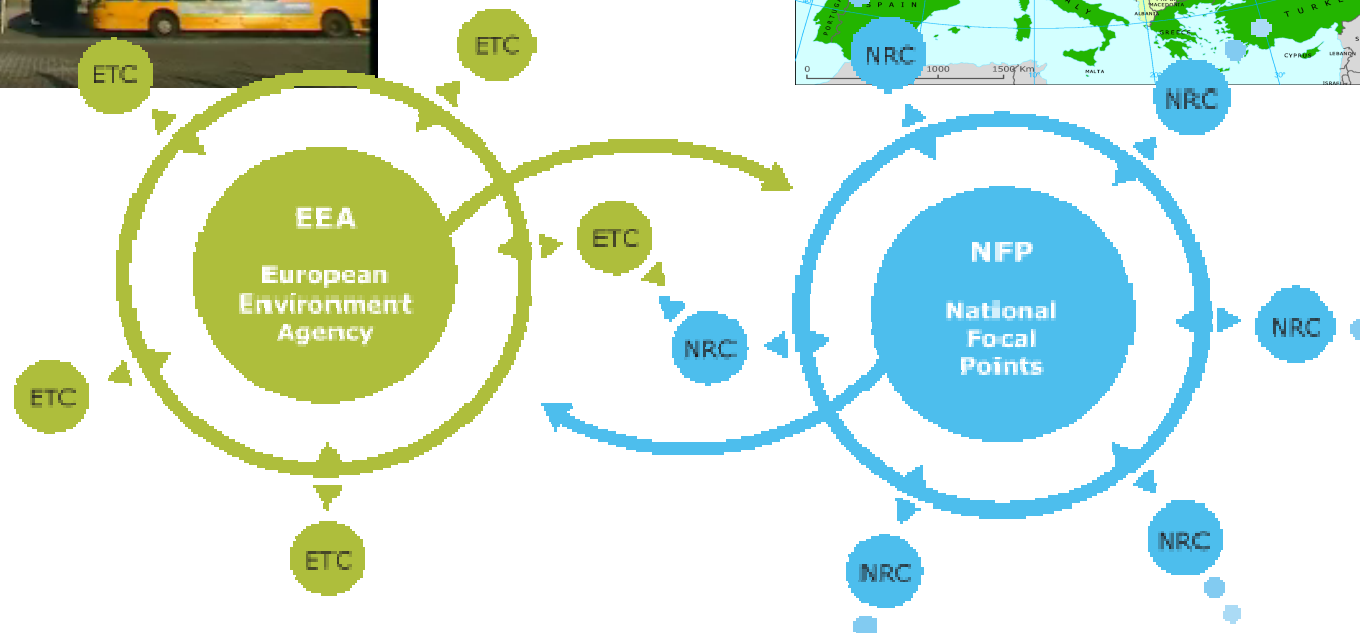
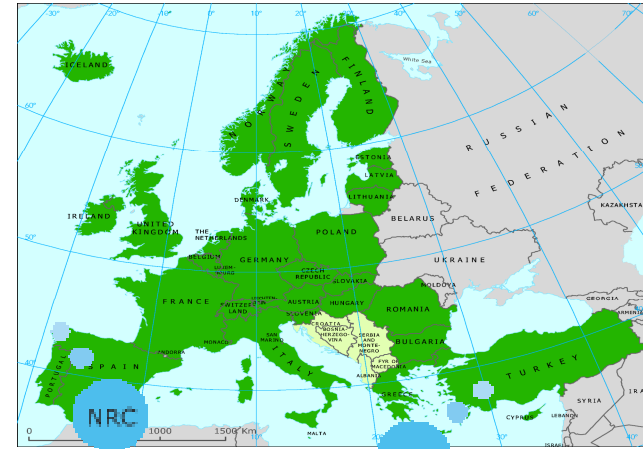
Marine in-situ observations for GMES

Tim Haigh

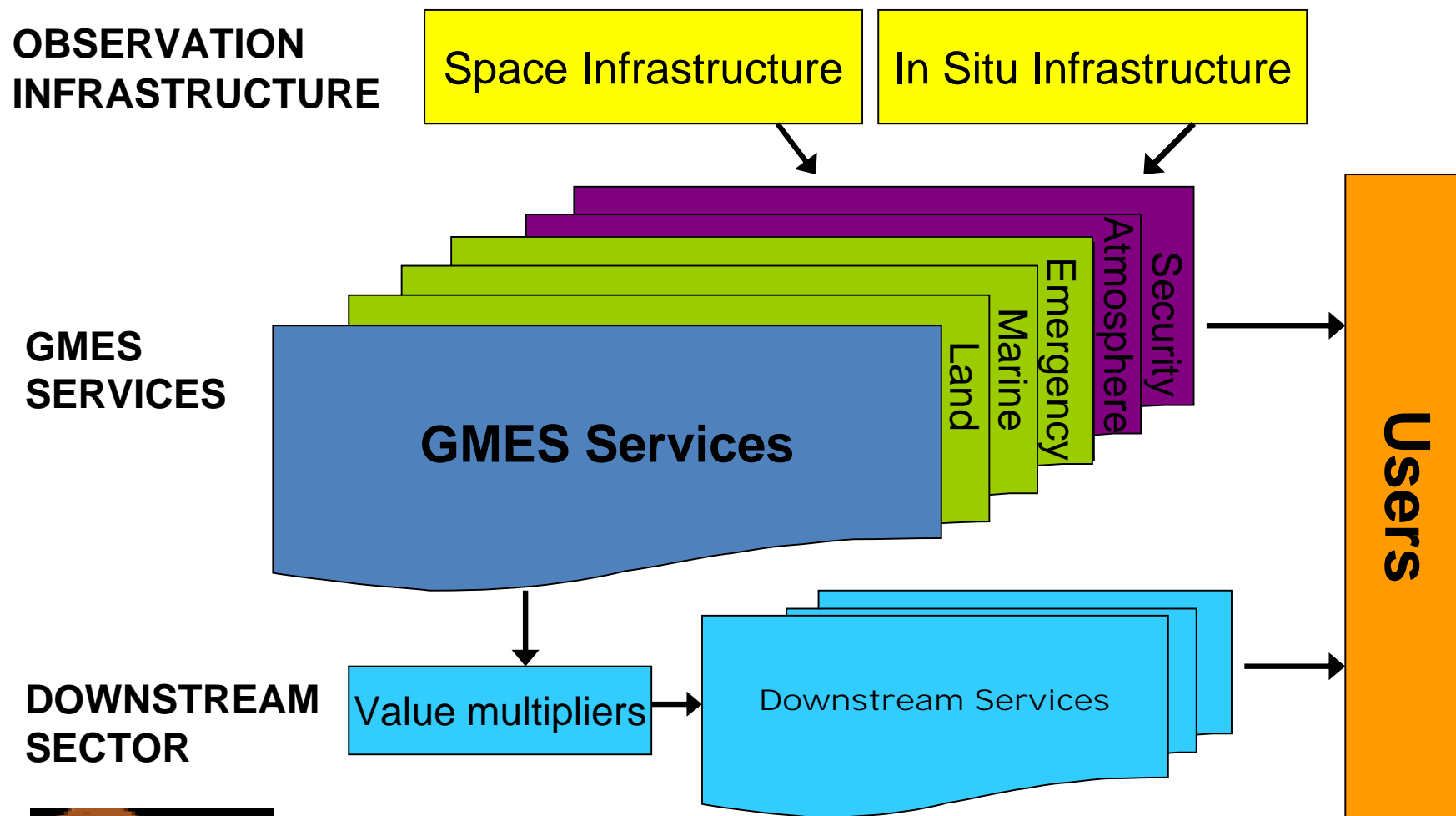
Head of Group - GMES

European Environment Agency

The EEA and the Eionet



The theory - GMES Architecture



In-situ infrastructure for GMES MCS

A (small) part of the overall infrastructure for marine observations and GMES

- Global and regional scales (coastal data are essential for downstream services data but not part of the GMES MCS)
- Real time data transmission capabilities => automatic systems
- Limited number of parameters : physical state (T, S, currents, Sea level, waves) and (when feasible) biogeochemistry (Chla, nutrients, oxygen)

Workshop objectives

- Review and update the main requirements from the GMES Marine Core Service and the main gaps.
- Analysis carried out for the different EuroGoos regional systems and also for the global ocean.
- Involvement of EuroGoos, ROOSes leaders, MyOcean and representatives from the main in-situ infrastructure components.
- Based on the requirements and scientific/technical/organization feasibility, define a first list of implementation priorities.

The workshop was organized by the EEA. The process and approach was supported by EuroGOOS who encouraged its members to provide inputs.

Meeting preparation

- Each of the ROOSes prepared a short document showing the present status of the in-situ observing system (type of instrumentation, main drivers and applications, operator), the components that are the most essential for the GMES Marine Core Service and the main gaps.
- Rough cost estimation should be given: equipment cost (initial and per year), personnel needed to operate the infrastructure, personnel needed for the data system. Operators of the in-situ infrastructure should also be identified. Ifremer prepared a short document for the global component together with MyOcean.
- Short position papers from the following transverse groups:
 - Euro-Argo (www.euro-argo.eu)
 - FerryBoxes (<http://www.ferrybox.org>)
 - EGO (Gliders) (<http://www.ego-network.org/>)
 - Sahfos and CPR (<http://www.sahfos.ac.uk/>)
 - EuroSites (<http://www.eurosites.info>)
 - EUMETNET Surface Marine Programme (E-SURFMAR) (<http://www.eucos.net/>)
 - JERICO: future European project on coastal observatories
- MyOcean prepared a position paper on its today in-situ data requirements and future needs (global and regional MFC, TACs).
- S. Pouliquen prepared with the MyOcean in-situ TAC partners a position paper on the data management performed in the in situ TAC: existing system, required evolutions, costs.

Costs of the global and regional in-situ observing system required by the MCS

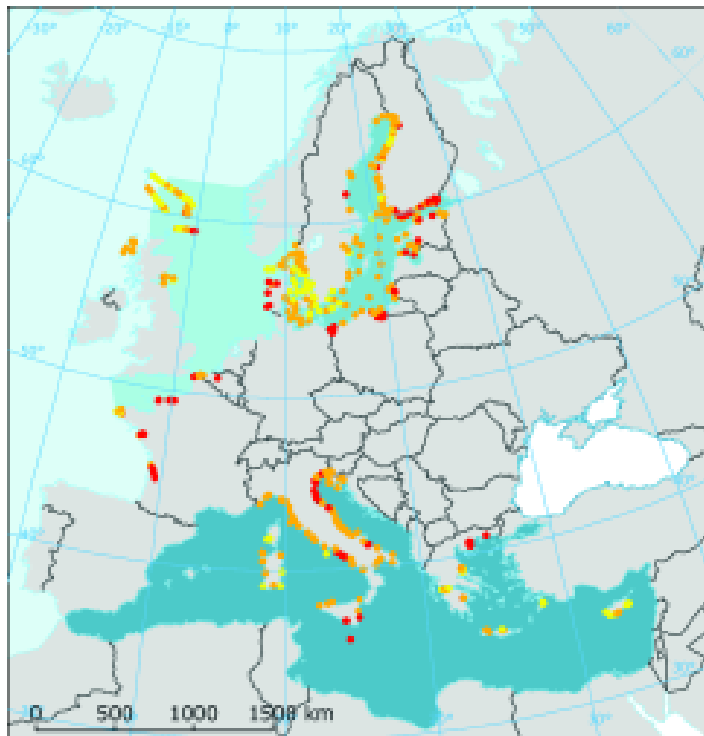
- For the regional seas, the consolidated costs of the in-situ observing systems for a given EuroGOOS region range from 10 to 20 Meuros/years (do not cover ship time). The analyses carried out suggest that an additional funding of 10 to 20 Meuros/year is needed for the different regional seas.
- The global ocean observing system component has a total cost estimated of about 120 Meuros/year while today international contributions only cover 60% of the required effort. Existing European efforts are comprised between 10 to 20 Meuros mainly through national support without including contribution from repeat hydrography observations from research vessels. Given Euro-Argo and Euro-Sites estimations, it is estimated that the European contribution to the global system should be augmented by about 10 Meuros/year.
- Data integration at European level relies on Seadatanet and the MyOcean in-situ TAC. These European projects build on existing and sustained national data acquisition, processing and archiving facilities. Costs for the TAC (coordination, data integration and harmonization, validation, service) is estimated to 5 Meuros/year.

What are the main gaps ?

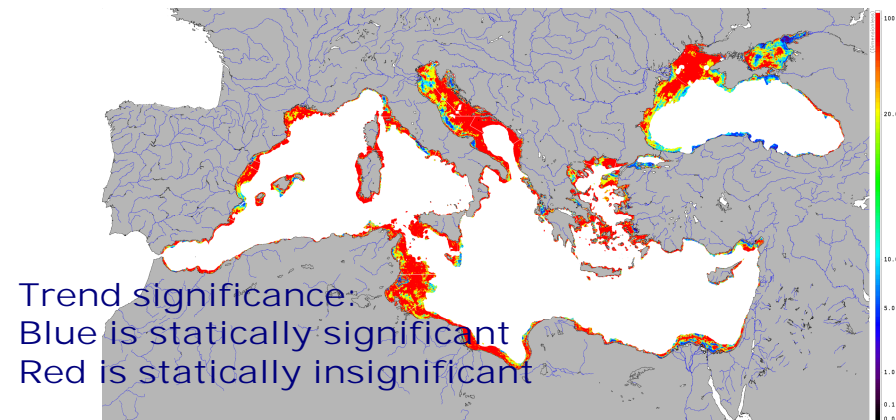
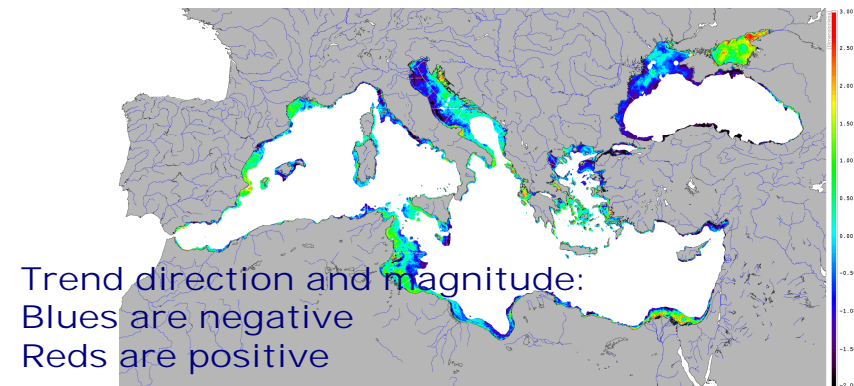
1. Organisation and coordination
2. Sustainability
3. Parameters and Improvements to the system (sampling quantity and quality, new parameters, new instrumentation)

- Problem with adequate data coverage.

Magnitude of concentrations

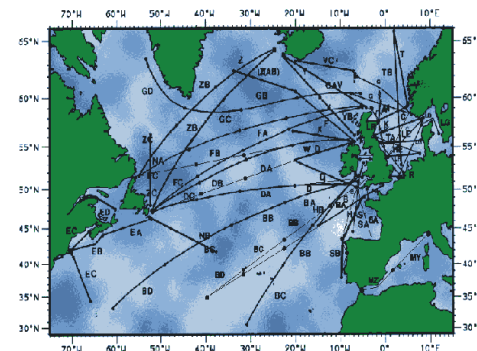
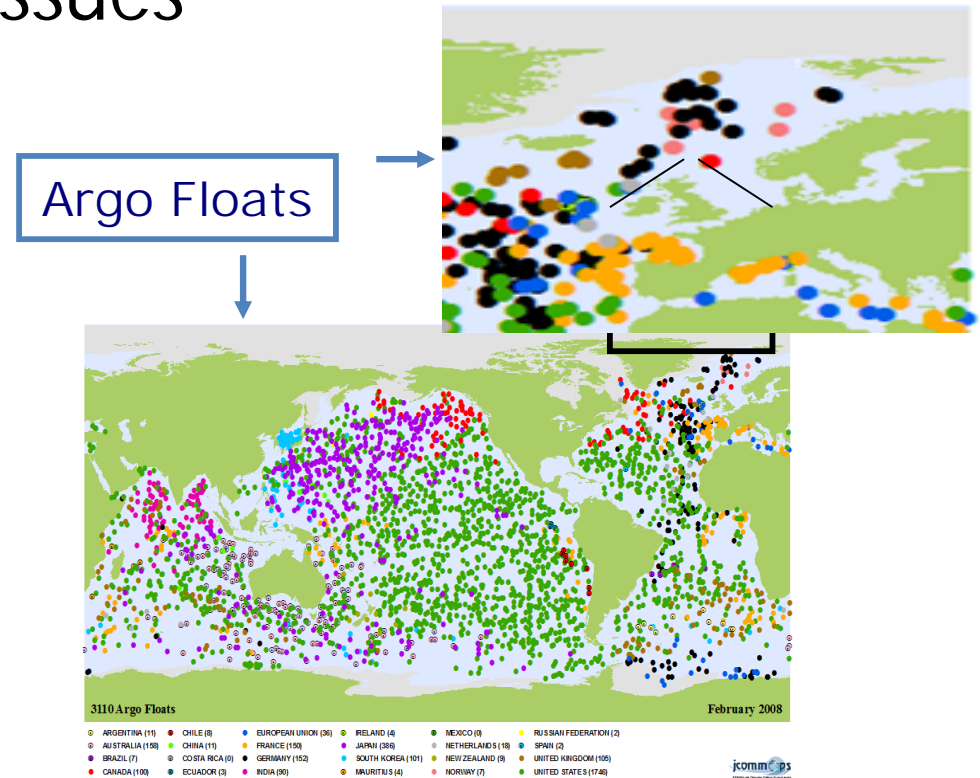


- Problem with level of significance and needs more verification with in-situ data.



In-situ data issues

- Many essential data (e.g. continuous plankton recorder and Argo Floats) are not required by any regulation.
- Bathymetry data are not harmonized at a Pan-European scale and are only available at a large cost.
- Observations needed for assimilation and validation of models. Existing observation systems do not fully meet the need for assimilation and validation;
- The absence of near real time fluvial data is a serious gap now and it will increase when MCS moves into ecological modelling.



Preliminary priorities for short -mid- term funding

co-fund transnational (pan-european) systems for the most important priorities:

- Short-term (from 2011)
 - Euro-Argo: 3 Meuros/year.
 - Euro-Sites: 3 Meuros/year.
 - Support for new or improvement (new parameters incl. CPR) of Ferrybox transnational lines (incl coord): 2 Meuros/year.
 - MCS in-situ TACs: 2 Meuros/years
- Mid-term (from 2013)
 - Euro-Argo, Euro-Sites, FerryBox and in-situ TAC
 - Contribution to E-Surfmar (drifters)
 - 20 glider transnational lines and coordination
 - HF radar European coordination
 - Set up or extend overarching coordination structures to bring together reps from coord bodies (especially assessing priorities for development of obs systems)

Coordination principles & issues (1)

Defining the overall coordination and organization of the in-situ infrastructure requires more work. Some general ideas are given here

- The coordination should rely on existing bodies and consolidate them when/if needed
- There is not a formal coordination for the European contribution to the global ocean observing system. A priority would thus be to set up an organization with responsibility for such coordination. European member states could also act together to strengthen and reinforce the international coordination structure (IOC/WMO JCOMM).
- Coordination of the transverse networks: Euro-Argo component is already well organized to coordinate and organize the European contributions to Argo (Euro-Argo ERIC). Euro-Sites is organized through projects but could also rapidly evolve towards a more stable (long term) organization. Same holds for FerryBoxes. The recent accepted Cost action for EGO is an important step to develop a sustained organization for gliders in Europe. A specific project or Cost action for HF radars should be encouraged.

Coordination issues and reccs (2)

- An organization and coordination of the regional seas and global component should be also consolidated and sustained through EuroGOOS and GMES.
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- Need to strengthen European link with international coordination bodies (JCOMM, IOC, GOOS), especially regarding the European contribution to and use of international observation capacities.
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- One should in parallel strongly encourage the near real time transmission of data from open sea, equipped fishing vessels, marine installations (energy) and research vessels. This should be worked out through the EuroFleets EU project and probably through a dedicated project. An R&D project on HF radars to design and coordinate an array of HF radars in Europe would also be very valuable.

Some conclusions

- Packaging information
- Definition of gaps
- Multiple use
- Re-use of existing platforms and capacities
- Partnerships and funding frameworks
- Sustainability
- Data exchange vs data collection
- Beyond technology platform based coord.

Outcome from process so far

The first version of the overall report and its annexes (incl preliminary valuation) will be available end September.