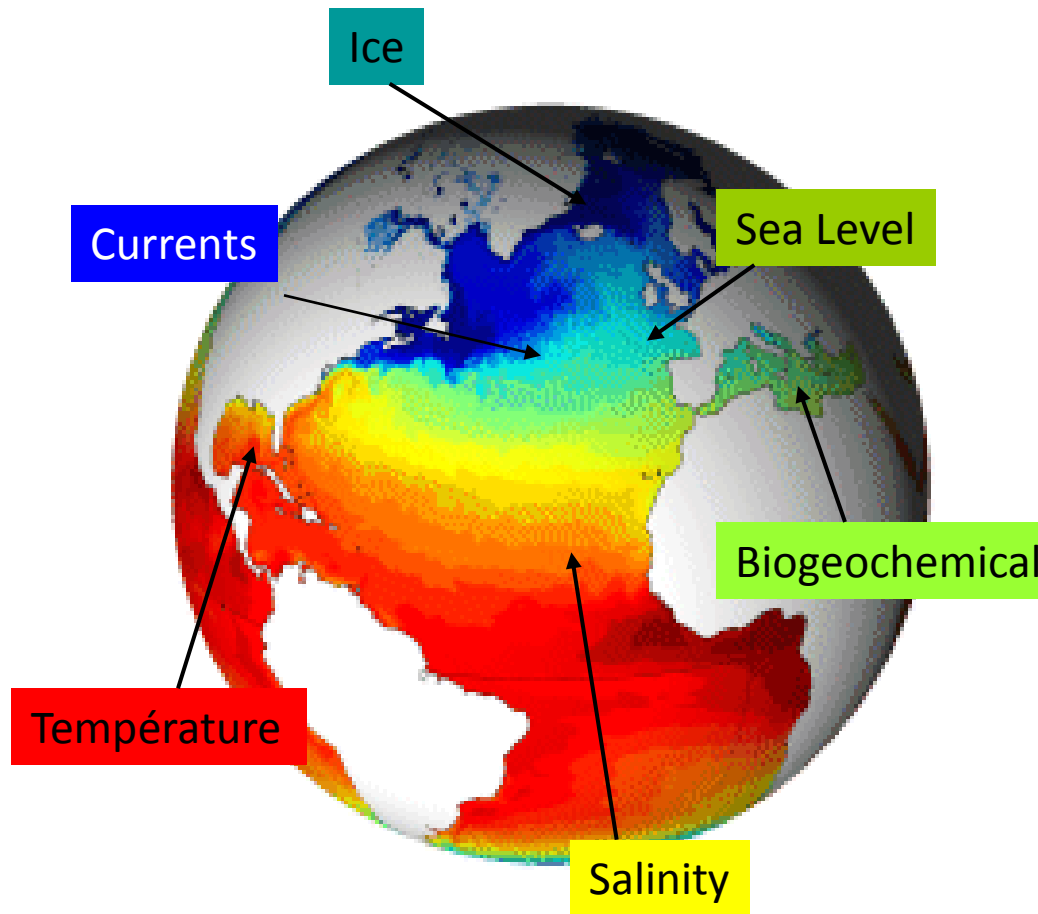


Requirement for In Situ data for European GMES Marine Core Service

S Pouliquen, PY Le Traon

EGO Workshop
Gran Canaria, Spain
18th March 2011

Ocean Monitoring and Forecasting



A **3D** and **dynamic**
vision of the ocean

- Currents,
- Temperature,
- Salinity,
- Sea Level,
- Ice,
- Biogeochemistry

- Anywhere (global & 3D)
- At any time (past, present, future)
- Real time & long period

In-situ observations are essential for the GMES Marine Core Service

***GMES MCS = a service based on an integrated approach
(satellite, in-situ observations, models)***

In-situ data are needed for:

- ⇒ Satellite calibration and validation: without in-situ data, the value of satellite observations is (strongly) diminished
- ⇒ Model calibration, validation and real time verification
- ⇒ **Data assimilation.** To provide reliable ocean information, data assimilation is mandatory (as for weather forecasting).

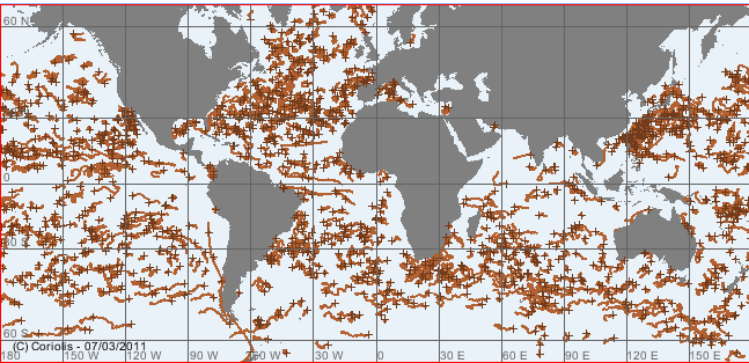
GMES MCS and the in-situ ocean observing system

- In situ global and regional measurements **are mandatory for operational oceanography** and GMES MCS (including climate aspects).
- **Requirements for a permanent, global and real time observing system** have been detailed in the OceanObs 1999 conference and have been endorsed by GOOS and JCOMM (IOC/WMO). **There is a wide consensus on the system to sustain.** Were revisited at the Oceanobs09 conference.
- **Regional enhancements** have been detailed and are implemented through EuroGOOS and member states.

In-situ data – Global Networks

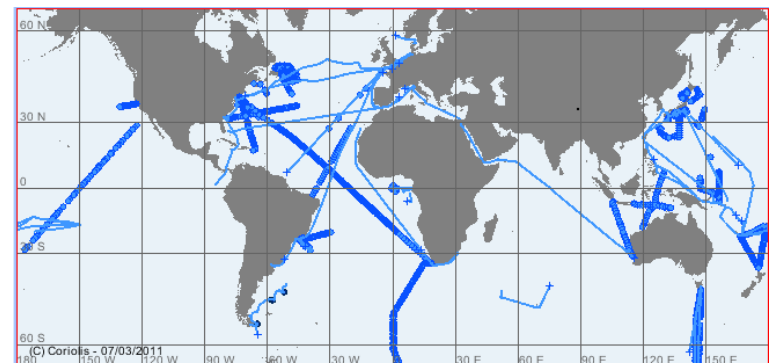
Surface drifters

One month

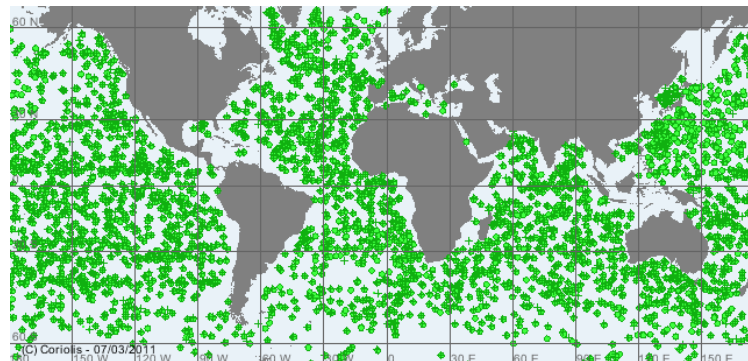


R. Vessels and VOS

one month

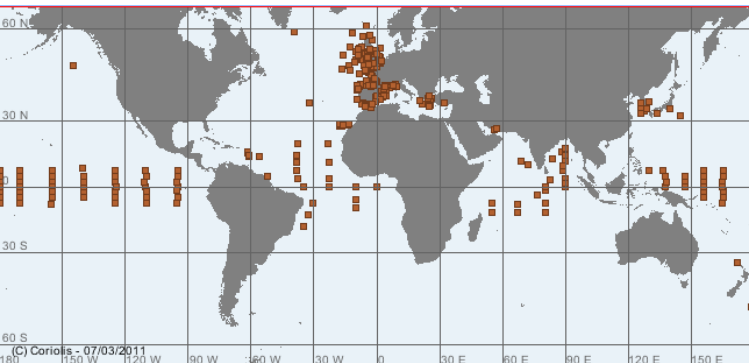


ARGO
10 days



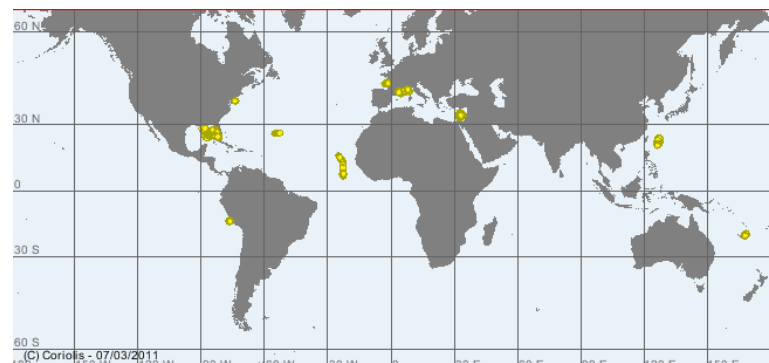
Moorings

one month



Gliders

one year



From global to regional (EuroGOOS) scales



In-situ infrastructure for GMES MCS

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

- **Global and regional** scales (coastal data are often useful for the MCS but they are mainly needed for / driven by downstream services)
- **Real time data** transmission capabilities
- **Limited number of parameters** : physical state (T, S, currents, Sea level, waves) and (when feasible) biogeochemistry (Chla, nutrients, oxygen)

EEA Workshop In-situ data requirements for GMES MCS

Summary & Discussion on main gaps and priorities

June 1st and 2nd
EEA, Copenhagen

Workshop objectives

- Review and update the main requirements from the GMES Marine Core Service and the main gaps (April 2007) compared to the present situation.
- Analysis carried out for the different EuroGoos regional systems and for the global ocean.
- Involvement of EuroGoos, ROOSes leaders, MyOcean and representatives from the main in-situ infrastructure components in Europe (Euro-Argo, EuroSITES, CPR, E-surfmar, gliders).
- 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.

What are the main gaps ?

1. Organisation and coordination
2. Consolidating (sustainability) of existing in-situ observing systems
3. Improving the in-situ observing system (sampling, new parameters, new instrumentation)

What are the main gaps ?

Coordination issues

Defining the overall coordination and organization of the in-situ infrastructure for GMES MCS requires more work. Some general ideas :

- There is a need to **evolve European marine coordination and governance towards a more sustained entity** with structured European and national relationships.
- **A European link with international coordination bodies** (JCOMM, IOC, GOOS, GCOS, GEOSS) should be formally established (Europe should reinforce this international cooperation)
- The overall organization also relies on the **coordination of transverse networks**: Euro-Argo component is already well organized (Euro-Argo ERIC). Same holds for CPR and E-Surfmar. Euro-Sites could also rapidly evolve towards a more stable organization. Same holds for FerryBoxes. [Work in progress for gliders](#). HR radars are used at national level

What are our main gaps ?

2. Consolidating (sustainability)

- One of the key **main gaps in marine observations** is the **lack of sustained funding**. There is an acute need **to secure longer term agreements between member states and the EU** to consolidate observing systems and **agree on common open (unrestricted) data policies**.
- A **co-funding mechanism (EU and member states)** could be set up for the pan-European components of the in-situ observing systems and to address common issues as well as to evolve the technologies.
- There is a need **for clarifying and streamlining the EU funding approach**, especially regarding the transition between initial funding through EU research infrastructure mechanisms and sustainable approach ensuring the long-term maintenance and continuity of observations.

What are our main gaps ?

3. Improving the system (sampling, new parameters, new instrumentation)

- ⇒ **Improvements for better sampling** (e.g. increase European contribution to Argo, new EuroSites moorings or FerryBox lines)
- ⇒ **Develop biogeochemical measurements** through FerryBoxes, moorings, **gliders** and evolution of Argo (Bio-Argo).
- ⇒ Strongly encourage the **near real time transmission** of data from open sea and coastal research vessels (EuroFleets EU project).

WE CRITICALLY NEED MORE DATA!

Preliminary propositions for European short-term or mid-term funding

If a direct EU funding is set up through GMES, it should be used to co-fund transnational (pan-european) systems for the most important priorities. The following list provides a series of preliminary propositions:

- Short-term (from 2011)
 - Euro-Argo
 - Euro-Sites
 - Support for new or improvement (new parameters incl. CPR) of Ferrybox transnational lines
 - MCS in-situ TAC
- Mid-term (from 2013)
 - Euro-Argo, Euro-Sites, FerryBox and in-situ TAC (see above)
 - Contribution to E-Surfmar (drifters)
 - Glider transnational lines (co-funding)

First version of the report – October 6, 2010



Report of the EEA Workshop In-situ data requirements for the GMES Marine Core Service

June 1-2, 2010
EEA, Copenhagen

P.Y. Le Traon, S. Pouliquen
October 8th, 2010

Report of the EEA Workshop In-situ data requirements for the GMES Marine Core Service

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Conclusions

- **In-situ observations** at different scales (global, regional, coastal) are **essential** for MyOcean and the GMES Marine Core Service.
 - This message should be **pushed by all GMES national delegates**
- **All transverse networks are important** and we should progress together (EuroArgo, EuroSites, Ferrybox, Gliders) to **build a coherent proposal to EU**
- Major gaps exists (sustainability, lack of observations)
 - **transnational Glider network** can contribute to it.
 - A coordinated approach to **define** and **strengthen** a glider network for GMES is necessary
 - **Data** have to be **provided to the MyOcean IN Situ TAC** to be used by GMES Monitoring and Forecasting systems.
- The **cost** of such network and **its funding schema** has to be provided: complementarity of national and EU funds, of research and operational funds. EU will fund **pan-European activities** and funds will always be **lower then the national ones**.