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10 September 2013

EuroGOOS AISBL & MyOcean2 Position Paper

Towards a long term EU funding for the in-situ component of the Copernicus Marine Service

The benefits of the EU investments in the Copernicus Space Component and Marine Service will not be fully achieved without significant additional EU investments in in-situ observations. Lack of sustained funding for in-situ observations is today putting the Copernicus Marine Service at risk. We thus recommend that the budget for the Copernicus operation (2014-2020) includes, in addition to that of the Copernicus Marine Service, a significant EU funding for the in-situ component required for the provision of the Marine Service. This is estimated to 30 Meuros/year, i.e. about 20% of the total cost for the operation of the in-situ infrastructure required by the Copernicus Marine Service (80% of cost being covered by national funding).

The Copernicus Marine Service, implemented in particular through the MyOcean project, has set up a pan-European service capacity for ocean monitoring and forecasting over the global ocean and European seas. In-situ and satellite observations are routinely assimilated in ocean models to provide in real time or in delayed mode (analyses and re-analyses) integrated descriptions and short-term forecasts of the 3-dimensional ocean physical and biogeochemical state. These products serve a wide range of applications and users. The successful development and integration of the MyOcean infrastructure, operational service and user base is a major achievement for Copernicus.

The delivery of the Copernicus Marine Service strongly relies on the timely provision of both satellite and in-situ observations. While satellites provide a global view of the surface of the oceans, in-situ systems provide complementary data primarily by monitoring their interior. In-situ observations are as important as satellite observations. The provision of the Copernicus Marine Service requires global to regional scale observations to constrain the models at depth and provide validation data. In-situ data are also needed to calibrate and validate satellite observations. Compared to other Copernicus services, the marine service depends, to a large extent, on in-situ observations as satellites do not observe below the sea surface. It is also anticipated that the Climate service will have a similar dependence on in-situ marine observations since the oceans play a significant role in influencing and regulating climate change.

The in-situ observing systems in Europe are coordinated and operated through EuroGOOS and its ROOSes together with European contributions to global networks (e.g. Euro-Argo, EuroSites). The EEA/GISC project has been tasked by the European Commission to provide an overall assessment of requested infrastructure and coordination needs for the Copernicus in-situ component. Several workshops have been organized between EEA, EuroGOOS, Euro-Argo, Euro-Sites and MyOcean partners to analyse requirements, gaps and to provide recommendation on the sustainability and evolution of the in-situ observing system (see EEA/GISC reports). There is a common understanding on requirements, gaps, risks and priorities.

The overall value of the marine in-situ component operated at European level has been estimated to about 150 Meuros/year. While a significant fraction of these costs are and will remain supported by Member States, it has been estimated that about 30 Meuros/year need

to come from a direct EU budget in order to enable an effective pan-European pooling of the relevant national in-situ observing systems. The EU budget should, in particular, cover European coordination costs (EuroGOOS coordination, coordination of global networks) and co-fund the development and operation of a European in-situ data collection, processing and distribution system as well as European contribution to global networks (that cannot be sustained by Member States only and will be more effectively sustained at European level).

There is actually a high risk that without significant additional support and funding from EU, the global and regional in-situ observing systems will not be sustained and will not be able to comply with minimum Copernicus Marine Service requirements for a state-of-the-art service. An EU funding is therefore mandatory and will have a leverage effect on national funding and commitments.

We thus recommend:

1. To implement a coordination mechanism for the marine in-situ observation component based on EuroGOOS and its ROOSes, in partnership with a possible coordination mechanism for the whole Copernicus in-situ component.
2. To start as early as possible a direct EU funding of key marine observation infrastructure required by the Copernicus Marine and Climate Services as part of the quick-wins identified by the EEA/GISC (e.g. Euro-Argo).
3. To include in the Copernicus operational budget (2014-2020), a funding for the marine in-situ observation component at the level of 30 Meuros/year. Details are provided in the table below. Complementarities with other EU initiatives could be explored.

REQUIREMENT	Direct EU funding needed /year	Comments	co-funding	Priority level based on impact, feasibility, maturity: 1 Very High 2 High 3 Mid	Comments
European coordination	1000	Regional sea implementation, coordination of global component	coordination costs = 100% funded by the EU	1	MoU with EuroGOOS - 1 person per ROOS + 1 coordinator global component
Support to international coordination	300	JCOMM and JCOMMOPS	coordination costs = 100% funded by the EU	3	need agreement with JCOMM
Consolidation and improvement of national observing systems in EuroGOOS ROOSes	10000	Improvements of systems and consolidation of existing ones (through a co-funding mechanism - 10 to 20%)	EU funding on pan-european aspects	2	need criteria/priorities from ROOSes. Need to set up agreements then with specific operators. EU funding should act to leverage national funding and should be focused on transnational aspects
Euro-Argo	4000	50% of costs (incl. Biogeochemistry extension)	contribution to a global and international array (Argo)	1	Euro-Argo ERIC in place (impact very high for Copernicus, global/regional, feasibility, marine service and climate)
Euro-Sites	3000	50% of costs	contribution to a global and international array (OceanSites)	2	Impact high but local/regional. Can serve both Marine and Atmosphere Not structured yet as Euro-Argo
FerryBox	2500	50% of costs	contribution to pan-European network	2	Impact high but regional. Not structured yet. Need to set up agreements with specific national operators or wait for an european organization
EGO	2000	50% of costs	contribution to pan-European network	3	Same as ferryboxes but slightly less mature but Structuring within the FP7 GROOM project
E-Surfmar/drifters	1000	50% of costs	contribution to pan-European network	2	Impact high and already structured within EUMETNET
R/V Vessels	3000	additional costs for real time data transmission and processing	100% of extra costs required for Copernicus	3	Need to set up agreements with Eurofleet
Central data management (in-situ TAC)	2700	50% of costs		1	Impact very high. Already in place and good collaboration with EuroGOOS ROOSes and EMODNET
TOTAL	29500				Approximately 20% of total costs