



1st International Stakeholder Workshop

Combining fixed and mobile ocean observing systems and their link with satellite observations

April 13th, 2021 - virtual

Introduction

This workshop aimed at connecting fixed and mobile ocean observing system infrastructure operators and stakeholders for the benefit of greater coordination and integration, that will undoubtedly translate into efficiency and more and better data and connecting to better services to public/society concerning climate change for example.

The communities involved in this workshop were:

- vessels operators;
- fixed-point observatories (coastal and deep-ocean);
- mobile systems (unmanned vehicles, ARGO floats);
- remote sensing (airborne, satellite).

The event had five invited speakers after a brief introduction on the EUROFLEETS+ project, its objectives and future plans to evolve towards a long-term sustainable distributed Infrastructure for the coordination of Research Vessels (RVs) in Europe (EUROFLEETS-RI). The first two invited speakers are from European Commission (EC) and European Organization for the Exploitation of Meteorological Satellites (EUMETSAT). The EC representative briefly outlined the strategy, trends and priorities for Horizon Europe in the environmental-marine domain. The EUMETSAT representative briefly outlined the strategy, trends and priorities for Horizon Europe in the space domain in relations with the marine one.

The other three invited speakers came from fixed-point and mobile research infrastructures (EMSO ERIC and EuroARGO ERIC) and from a project dealing with gliders (GROOM-II). To stimulate discussion during the workshop, four key concepts towards an interdisciplinary framework of excellent science with fit-for-purpose technology were proposed in line with UN Decade and Horizon Europe objectives (Figure 1).

Each of the three speakers were invited to briefly address three questions related to the four "key concepts" before breaking into small discussion groups to further explore how the questions posed. The questions to be addressed were:



- a) What are the main actions [Name of RI] is doing to achieve/implement/advance/deliver on these key concepts?
- b) What are the principal gaps/barriers [Name of RI] has identified to their implementation?
- c) What plans are in place to bridge the identified gaps/barriers in a short-term (1-3ys), medium-term (4-6ys) and long-term (10ys)?

01

Cooperation - The action or process of working together towards a shared aim

Marine research requires significant investments in infrastructures. Such investments are challenging for single entity's/RI's, thus active cooperation has always been key for development, especially when it comes to open ocean systems both at a regional and global scale

02

Coordination - The act of making parts of something, groups of people, etc. work together in an efficient and organized way

Effective use of resources demands coordination both within individual infrastructures as well as with the external environment and in this case the related infrastructures. Top down coordination or co-coordination are possible mechanisms amongst other approaches/methodology's/paradigms that can be applied

03

Integration - The act or process of combining two or more things so that they work together

Towards an integrated "fit-for-purpose" system in line with the approach outlined in the Framework for Ocean Observing. Data integration activities can be a starting point but actions should also go beyond this

04

Simplification - The process of making something easier to do or understand

Multiple actors and stakeholders operating at national, regional and EU level, creates a complex landscape, which can be difficult to navigate, and so constitutes a real challenge. Due to this complexity, significant resources are often wasted

Figure 1: Definition of the four "key-concepts" and their tuning to the scientific domains

Results

The workshop was very successful with over 220 registered also from extra-European countries (including from Africa and Asia) and peaks of over 140 participants. The dialogue, made through discussion groups and polls, was fruitful highlighting many expectations from the attendees and key-takeaways reported below.

Expectations

- Find areas and potential opportunities for improving collaboration between the different ocean observing networks.
- Basically to see how other organizations in Europe are working with combining data acquisition from these different platforms and sharing what we are doing at my organization. Also to find possible future collaborations.
- Networking for deployment opportunities for our mobile systems (Argo floats).
- Get a notion on how Eurofleets+ aims at advancing (European) ocean observing.
- To have an updated picture of the European monitoring services and stakeholders.
- Knowledge on the impacts of both human impacts and related climate change on ecosystem functioning.
- To set-up unique entry point for the coordination of the RVs' use.



Key takeaways

- Formal schedule of ship time access.
- Integration and sensor interoperability with RVs.
- Collaboration for RV access for deployment and recovery of equipment, common multipurpose cruises, common experiments with different Research Infrastructures (RIs) or research groups.
- Data sharing and access.
- Joint programme for training researchers and technicians.
- Personnel exchange (marine technicians).
- Open access to detailed cruise track.
- Long-term funding streams - Joint funding streams for RIs.
- **Cooperation** - Better collaboration with RVs, sharing of best practice, develop tools for long-term actions continuity.
- **Coordination** - Improved coordination between RIs, joint training and testing, data.
- **Integration** - Better interoperability, real-time data, Multi-mission operations, resourcing, funding.
- **Simplification** - Automation of key online access processes, global efforts in Global Ocean Observing System (GOOS), align programmes, work with industries.
- **Short term: 1-3 yrs** - Planning system with RVs/shareable IT platform/improved data management/real time/shared vision for marine RI landscape/service for industrial sectors.
- **Medium term: 4-6 yrs** - Collaborative system between marine RIs/develop a strategy for platform recovery with RVs.
- **Long term: 10 yrs** - Joint research actions to develop sensors, long-term planning for marine operations/coordinate a long-term plan of operations at sea/maintain frontier science services and innovation.

Conclusion

The main outcomes can be summarized as:

- improving the cooperation/coordination between RV operators with other RIs and stakeholders;
- favouring integration through better interoperability;
- simplifying the access system towards multi-mission approach with the purpose of optimizing the space-time use of the RVs.

The interactions will be maintained with discussion fora and organizing other workshops in the near future. The final consideration is related to the importance to advancing the establishment of a legal entity for Eurofleets (EUROFLEETS-RI) aimed at uniting the world-class research vessels and associated equipment among European partners to facilitate access to unique marine infrastructure for a wide user community.

