FPCUP Action 2021-2-47: Integrated Report on the Three Interaction Cycles with National Users

General Introduction

This report summarizes the activities conducted in the FPCUP action 2021-2-47. The aim of this action is threefold. The first goal is to support the creation of or consolidate a stable network of Copernicus national users dealing with coastal areas in the Member States represented by action's partners. The second goal of the action is to foster an exchange between the four different national networks of users, sharing hot discussion topics or solicitating the discussion at national level on specific topics of interest in a different country. The last goal, which is strictly linked to the previous two, is the drafting of guidelines to design surveys to collect users' needs in terms of Copernicus products or downstream products for coastal areas and to map existing national services following standardized rules. This will guarantee that autonomous initiatives at national level will bring results that are easy to compare with similar initiative independently organized in a different country.

The interaction with national users is based on three cycles of interaction (Figure 1) conducted with national users by the four participating partners: AD AIR Centre, CNRS/PMBA, IHCantabria, and ISPRA. Each cycle included a preliminary action meeting to compare provisional agenda and identify a common topic to be addressed by all partners, followed by dedicated meetings or diverse ways to interact with national users of Copernicus products and other Earth Observation (EO) services in coastal and marine domains. The cycles are closed by a new action meeting to compare about the outcomes.

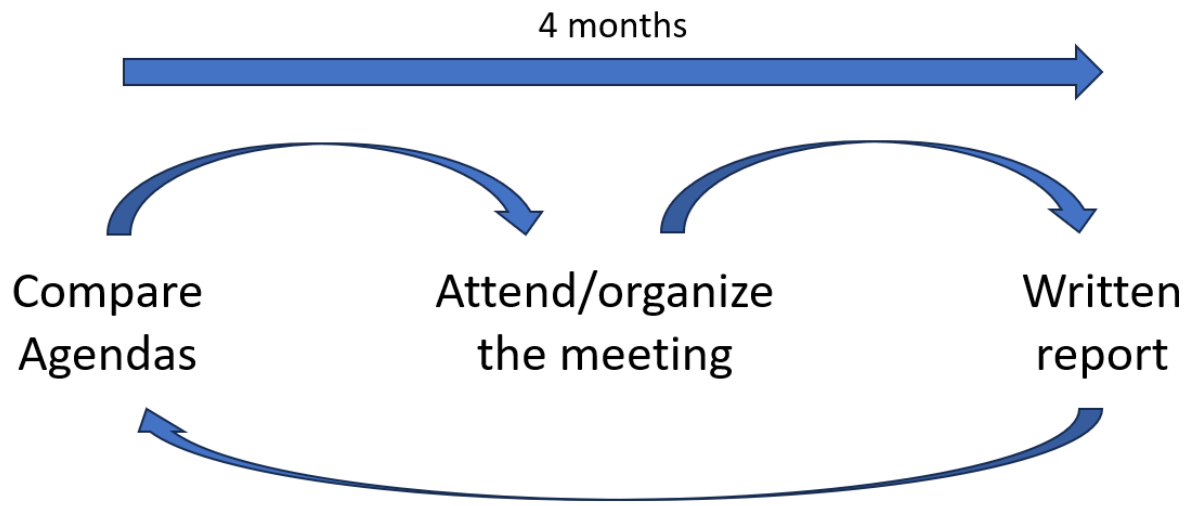


Figure 1: Sketch of the three cycles of interaction with national stakeholders.

For each cycle, all four partners prepared individual reports reflecting their specific interactions, activities, and contributions. In total, twelve reports were produced (four per cycle), which collectively provide a comprehensive view of user needs, challenges, and emerging opportunities in Portugal, Spain, France, and Italy.

Fostering the creation of stable networks of coastal users using Copernicus products or products from downstream services.

The users involved in this action activities represent a broad range of stakeholders, including public institutions, research organizations, private companies, and industrial entities operating in coastal management, aquaculture, marine ecosystem monitoring, and digital innovation fields. The continuous

dialogue fostered through these cycles aimed to support the uptake and co-development of Copernicus downstream products and to align national initiatives with European strategies.

Air Centre (Portugal), IHCantabria (Spain) and CNES/PMBA (France) had a list of contacts but not a real established network of national users of Copernicus data focused on coastal areas. While ISPRA (Italy) relied on an existing network created as a discussion thematic board in the framework of the National Copernicus Users Forum.

Therefore, the interaction with national stakeholders was based on regular meetings for Italy and on a mix of surveys, meetings and interviews for Portugal, Spain, and France.

The results obtained by this action on this topic enabled to connect with known stakeholders and users at national level and onboarding new ones. The creation of this group or database of national stakeholders in coastal areas dealing with Copernicus or downstream products supported the identification of knowledge gaps and technical or organizational barriers to the adoption of Copernicus services at national level. Overall, these efforts helped expand stakeholder engagement, assess the current use of Earth Observation (EO) services, and guide future developments in coastal monitoring and digital ocean innovation at the national level.

In general, the interactions revealed a strong readiness among coastal stakeholders to engage in pilot projects and co-develop tailored solutions. While technical challenges such as data complexity and resolution gaps persist, the relevance of Copernicus services for a wide range of coastal applications is confirmed. The importance of co-designing solutions with end-users, supporting capacity building, and promoting the integration of Earth observation data into local decision-making processes was also highlighted. Awareness of emerging concepts such as digital twins remains limited but is growing, particularly in relation to infrastructure monitoring and environmental simulation. Overall, the action demonstrated the value of combining structured needs assessment with targeted outreach to foster adoption and innovation in the coastal domain.

Continued engagement and feedback loops will be essential to improve the usability and impact of Copernicus services.

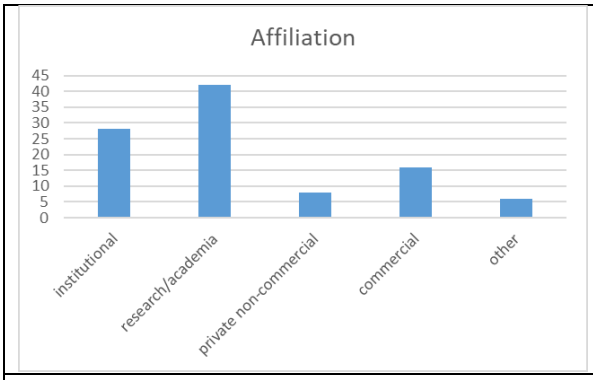
Fostering communication between coastal groups in different countries

The interaction between action partner alone proved a basic tool to identify similarities and differences in needs and approaches to Copernicus data in users' communities at national level in different Member States. Some countries are focused on assessing users' needs with respect to Copernicus products, while others are planning national services to integrate Copernicus services and meet national users' needs.

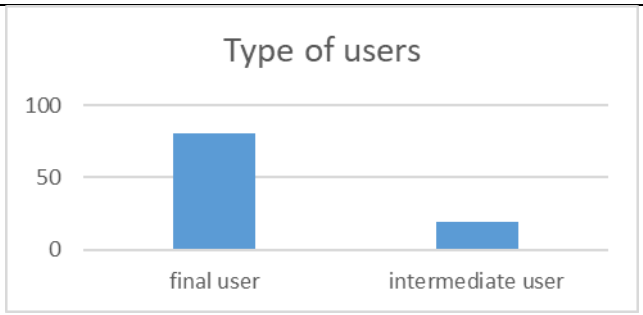
The topics that were identified as common points in the agendas were: national downstream services in the first cycle of interaction, testing the methodology to interact with national users by performing a survey on aquaculture in the second one and Digital Twins in the last one.

Concerning the first topic, the reports highlight that a robust system of national downstream products is not yet consolidated in the four countries, and even existing products that are operational are not well known among users. It is essential to identify platforms to bring together service providers and potential end users, and showcase new/existing downstream national products, encouraging their adoption and stimulating the development of innovative solutions in ocean and coastal monitoring.

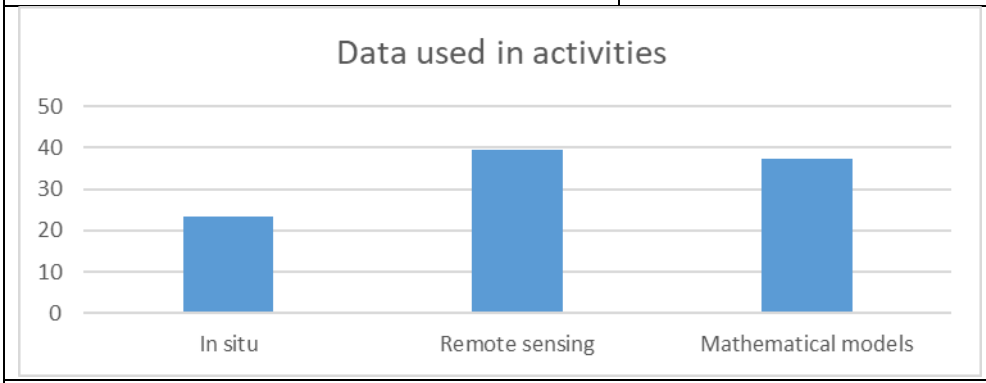
The second topic was tackled by the independent drafting of different surveys for stakeholders in the aquaculture sector built following the principles in the guideline produced within this action. The result highlighted that it was possible to merge the results for many questions in the different surveys. We highlight that this is only a test to verify the comparability of the surveys, so the results of the survey are not statistically significant. The following figure shows the merged results for questions common in the different surveys. It is important to highlight that in a couple of questions one of the surveys slightly deviated from the guideline merging different classes of answers anyway it was still possible to repeat this operation in the other surveys to obtain completely homogenous results. To be clearer, the guidelines clearly identify specific options from answers related to spatial and temporal resolution of products. In one survey a couple of such classes were merged.



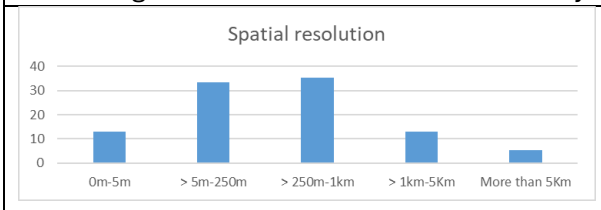
Percentage distribution of respondant affiliation.



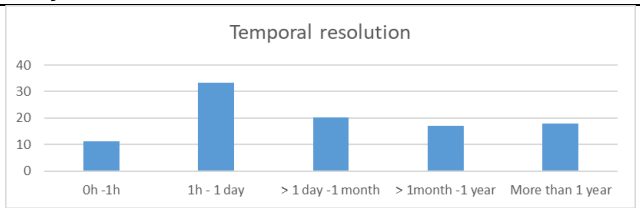
Percentage distribution of respondant type of users.



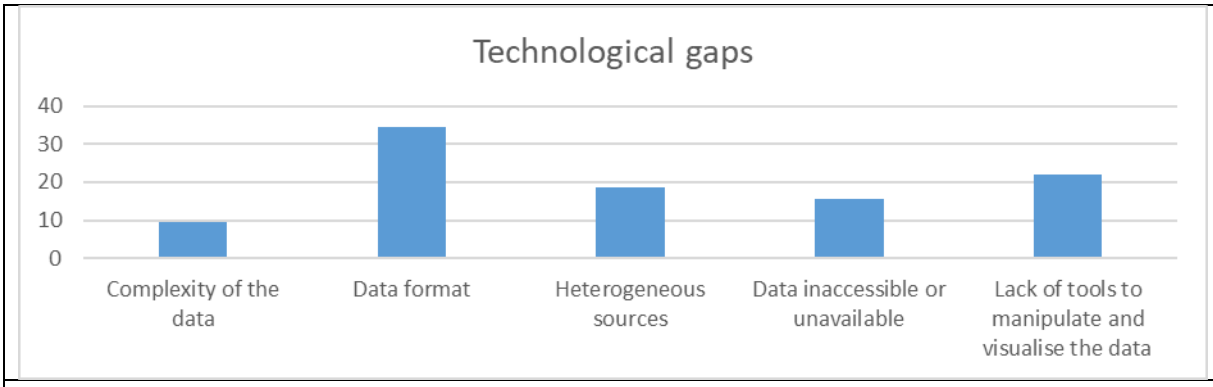
Percentage distribution of kind of data mainly used by users.



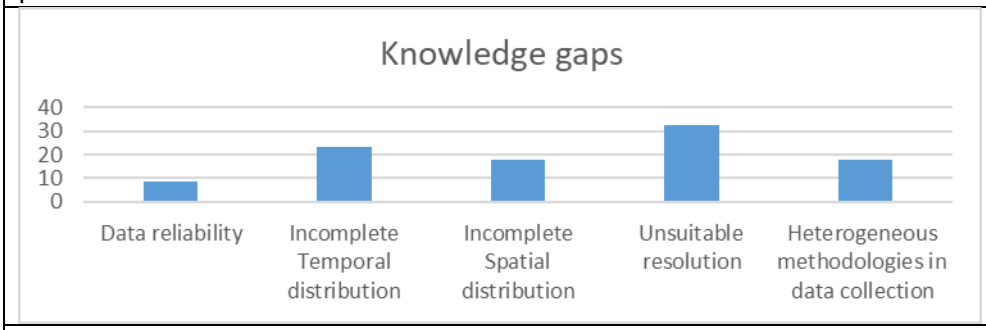
Percentage distrubution of preferred spatial resolution.



Percentage distrubution of preferred temporal resolution.



Percentage distribution of main technological gaps preventing users from using Copernicus products.



Percentage distribution of main knowledge gaps preventing users from using Copernicus products.

Methodology for the collection and processing of national data for analysing user needs in coastal areas and mapping existing products and services.

One of the main products of this action is a document to describe a common methodology to collect users' needs for services providing data and information for stakeholders in coastal areas, and to survey existing services and identify gaps between demand and offer to design new services. The main improvement offered by the methodology is that it is shared among partners belonging to different EU Member States, standardizing some typical questions present in surveys aimed at Copernicus and more in general Earth Observation products for monitoring coastal areas. The aim is to homogenise surveys designed following the methodology so that results collected at the country level may be easily summed up at the Union level. Following this approach standard classes of answers are proposed for multi-choice questions, different parameters are clearly categorized and named. Classes for issues in using Copernicus data or to describe general features of users answering to the surveys are provided too.

Conclusions and Recommendations

The action showed that the sustained dialogue with end-users is essential to keep Copernicus products relevant and responsive to operational needs in coastal and marine sectors. Maintain and enhance a continuous and structured user engagement programme proved to be a functional way to solicitate participation of users to this dialogue, favour dissemination activities and exchange among groups of users distributed in different countries.