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FPCUP Action 2021-2-47: Report on the third cycle of interaction with national users.

In France, the third cycle of interaction with national stakeholders focused on coastal users and was structured around a twofold approach: a series of targeted interviews conducted by the Booster MORESPACE (Pôle Mer Bretagne Atlantique) and a thematic webinar organized in response to the needs expressed. This cycle marked a continuation and deepening of the work initiated in the first two cycles, with a shift toward more operational and territorially grounded use cases. The interviews revealed a strong demand for Earth observation data to support coastal resilience, environmental monitoring, and infrastructure management. Compared to the first and second cycles, which were based on surveys, this third cycle relied on direct exchanges and qualitative feedback. This approach allowed for a more detailed and contextualized understanding of user expectations, particularly regarding the integration of Earth observation data into operational workflows.

Among the most prominent needs were the dynamic monitoring of marine biodiversity in response to climate change, particularly in the Iroise Sea where thermal fronts influence species distribution. Stakeholders such as the OFB and the Region of Brittany expressed interest in tools that could leverage CMEMS and Sentinel-3 data to track sea surface temperature and chlorophyll-a, and to correlate these with observed changes in marine ecosystems. Another key concern was the accumulation of macro-debris in convergence zones, which poses risks to navigation and marine life. Ports and environmental agencies highlighted the need for near-real-time mapping tools combining ocean drift models and Sentinel-2 imagery to support clean-up operations. Water quality monitoring also emerged as a priority, especially in the context of heavy rainfall and runoff events that lead to increased turbidity and bacterial pollution in coastal waters. Users requested integrated tools that could combine satellite-derived indicators with meteorological forecasts and in situ sensors to anticipate and mitigate these impacts. The integrity of coastal protection infrastructure, such as dikes and polders, was also identified as a critical issue. Regional authorities and port managers emphasized the potential of Sentinel-1 interferometry to detect structural deformations, and of Sentinel-2 to monitor sedimentation and corrosion risks. These needs reflect a growing awareness of the importance of continuous, high-resolution, and accessible Earth observation data for coastal zone management.

In response to these findings, a [webinar](#) was held on 14 November 2024, bringing together 33 participants from research institutions, public agencies, private companies, and local authorities. The event, organized by MORESPACE in collaboration with Mercator Ocean International, showcased a range of Copernicus services and tools relevant to the coastal domain. Presentations from Mercator Ocean International, Actimar, Sinay, D-Ice Engineering, Acri-ST, and Hydromod addressed many of the needs previously identified. CMEMS products and time series tools were presented as solutions for monitoring thermal fronts and supporting biodiversity assessments. Sinay demonstrated how wind and current data could be used to predict marine litter

accumulation zones. Actimar and D-Ice Engineering introduced tools for maritime risk management and vessel routing that could be adapted to monitor the impact of environmental conditions on coastal infrastructure. Hydromod and Acri-ST illustrated how satellite imagery and modeling tools could support the implementation of European directives such as the Marine Strategy Framework Directive and the Water Framework Directive, particularly in coastal planning and pollution monitoring. The webinar also served as a platform for dialogue, allowing participants to explore potential collaborations and express interest in follow-up bilateral meetings. It helped raise awareness of existing Copernicus services and fostered a better understanding of how these tools can be adapted to local coastal needs.

Compared to the first cycle, which focused on research-driven coastal dynamics, and the second cycle, which targeted aquaculture-specific indicators, this third cycle emphasized cross-cutting operational needs in the coastal zone. It revealed a stronger 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 third cycle confirmed the relevance of Copernicus services for a wide range of coastal applications. It also highlighted 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. Awareness of emerging concepts such as digital twins remains limited but is growing, particularly in relation to infrastructure monitoring and environmental simulation. Overall, the third cycle demonstrated the value of combining structured needs assessment with targeted outreach to foster adoption and innovation in the coastal domain.