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Introduction to AquaINFRA

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Unhealthy oceans, seas, coastal, and inland waters



Challenges for ocean and fresh water scientists

- Separate research environments
- Domain specific data repositories for marine data, fresh-water data, and socio-economic data
- Researchers often prefer to keep their data for themselves
- General lack of holistic approach in modelling efforts where domain experts are using their "own" data and models

Marine research Centre

Laboratory of fresh water research

Department for environmental policy analysis



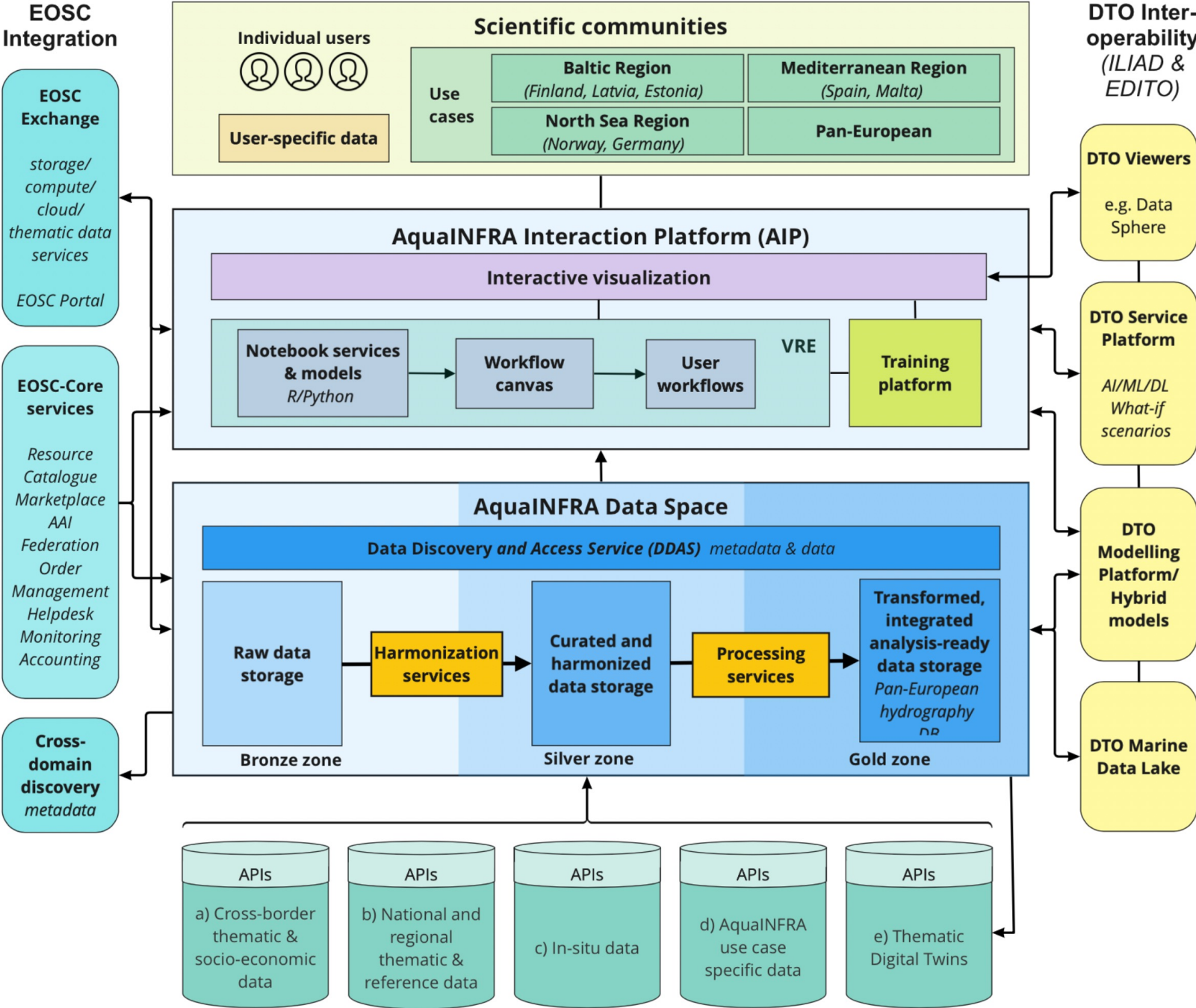
The objectives of AqualNFRA

The overall objective of the project is to develop a virtual environment equipped with FAIR multi-disciplinary data and services to support marine and freshwater scientists and stakeholders restoring healthy oceans, seas, coastal and inland waters.

The AqualNFRA virtual environment will enable the target stakeholders to store, share, access, analyse and process research data and other research digital objects from their own discipline, across research infrastructures, disciplines and national borders leveraging on EOSC and the other existing operational dataspace (e.g., EMODnet, Copernicus Marine Service, Digital Twins, etc.)

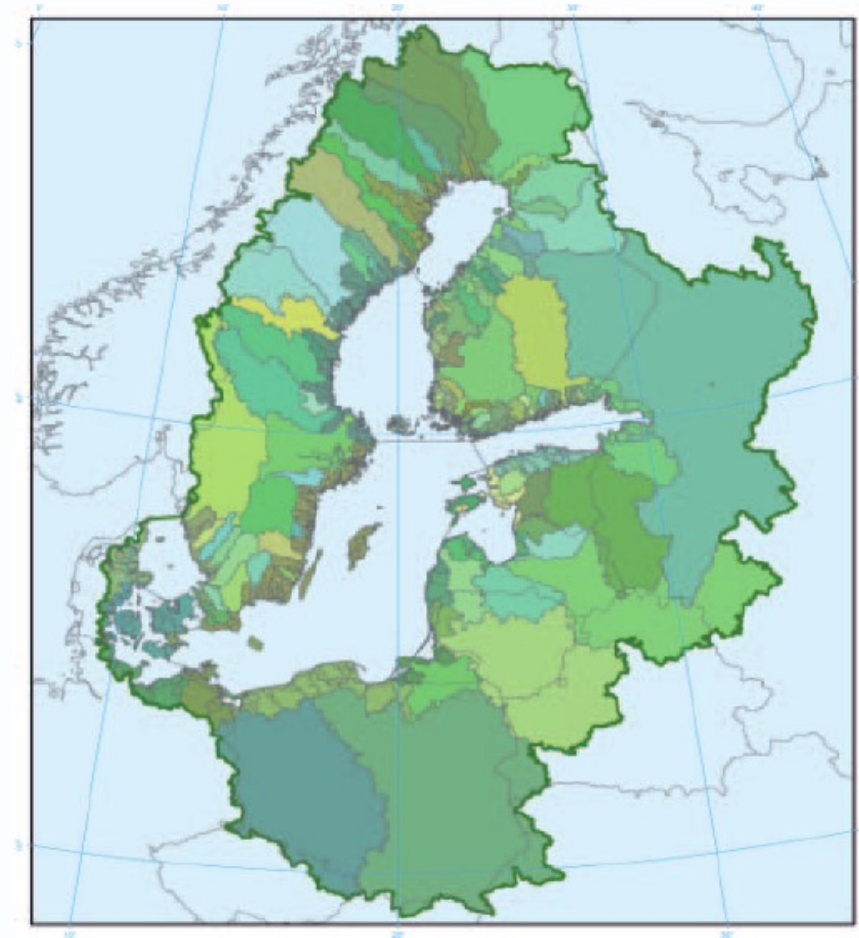
- To seamlessly integrate the new AqualNFRA components with the EOSC-Core services and to make the AqualNFRA relevant resources discoverable and accessible via the EOSC Exchange
- To provide an EOSC service that allows users to seamlessly and easily find and access data from the diverse set of catalogues
- To equip marine and freshwater scientists with a user environment for data harmonisation, processing, quality assessment, interaction and sharing, emphasising the pan-European seamless connectivity across the marine and freshwater realms
- To develop use cases for improved water quality and healthy aquatic environments to demonstrate the value of sharing open and FAIR research data and provide feedback to the EOSC Partnership
- To build an open and reproducible science capacity in the marine, coastal, and inland water research communities, from bachelor's students to experienced researchers
- To synergize with the oceans, seas, coastal and inland waters initiatives and the EOSC Partnership to avoid overlaps and reuse existing resources

Conceptual model for AquaINFRA



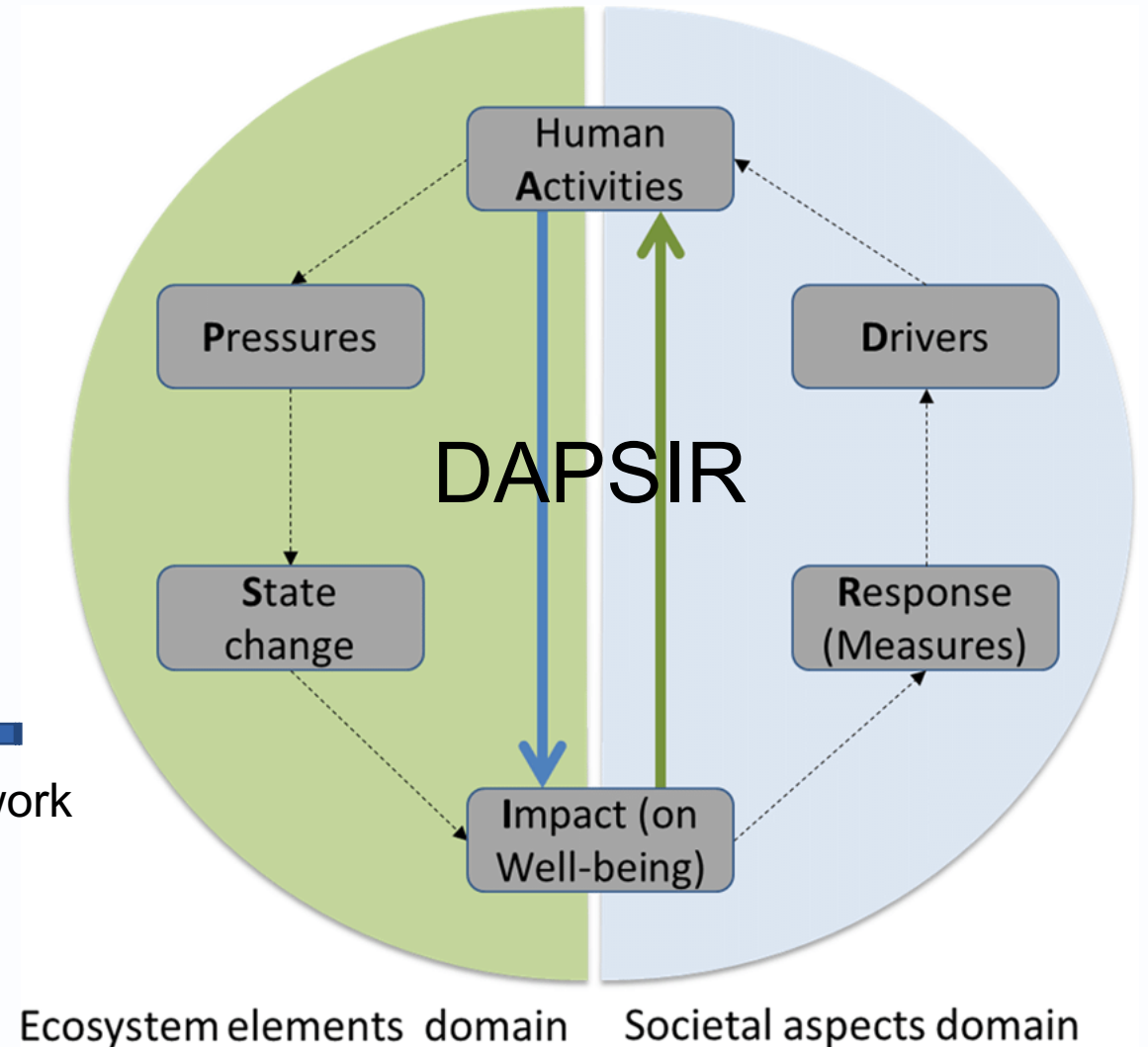
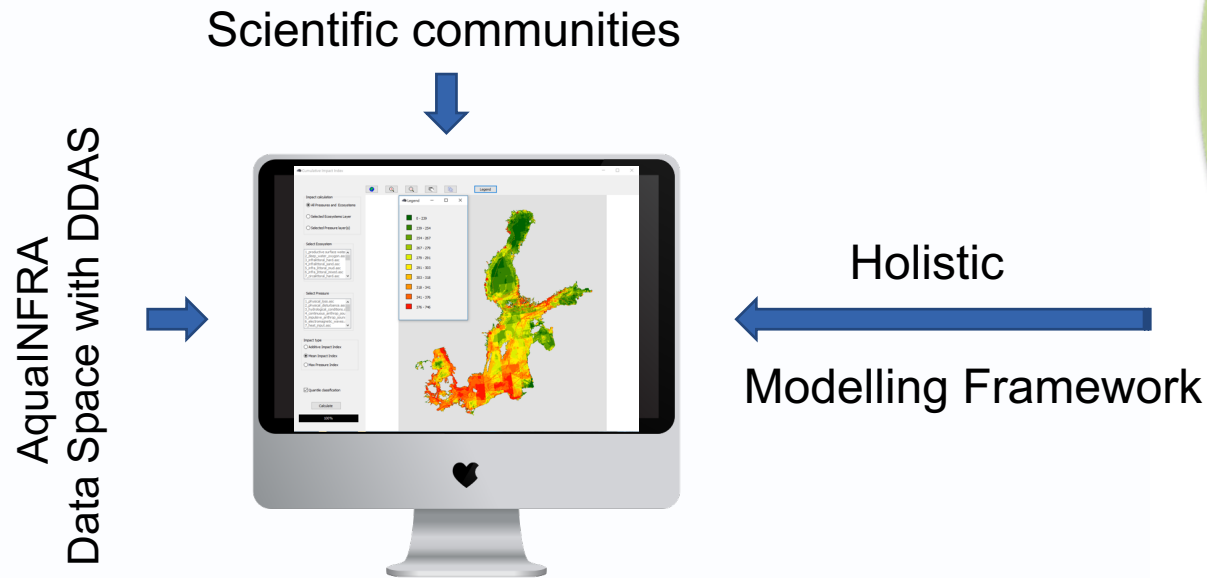
Data from source to destination

- Restoring healthy oceans, seas, coastal and inland waters requires a holistic analysis of the activities, pressures, and impacts on ecosystems from sources to destinations
- To facilitate this requirement the AqualNFRA Data Discovery & Access Service will search for marine data, fresh water data, and socio-economic data seamlessly across borders and data repositories
- Particular emphasis will be put on searching along river networks to identify critical activities and pressures and to estimate the cumulative pressure from a catchment or sub-catchment



AqualNFRA Interaction Platform

The AqualNFRA Interaction Platform (AIP) will be the central gateway for scientific communities in the aquatic realm to interact with EOSC and access the AqualNFRA resources (harmonisation and processing services, research products, visualisation, virtual research environment and training platform)

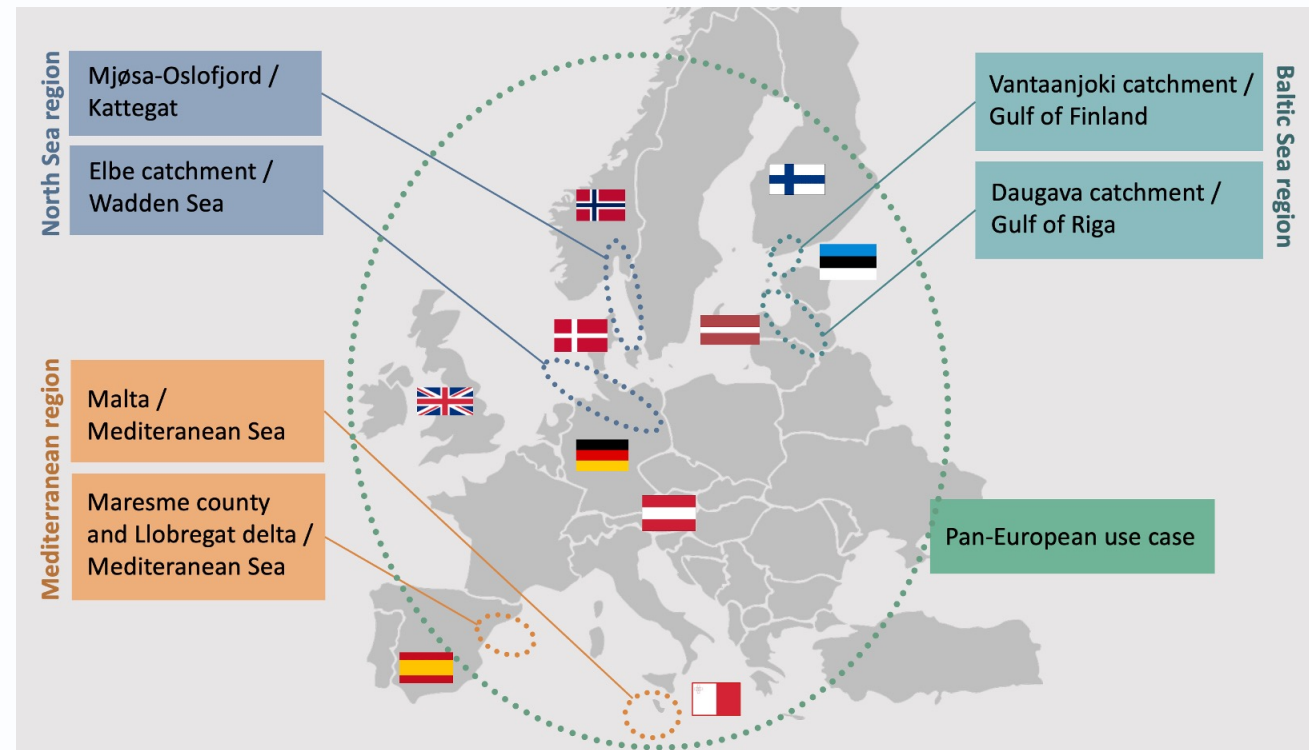


Use cases

The AqualNFRA use cases cover across Europe and different scales: three regional use cases and a pan-European, covering differences in latitudes, bathymetry, salinity, temperature, environmental, climate, and socio-economic conditions.

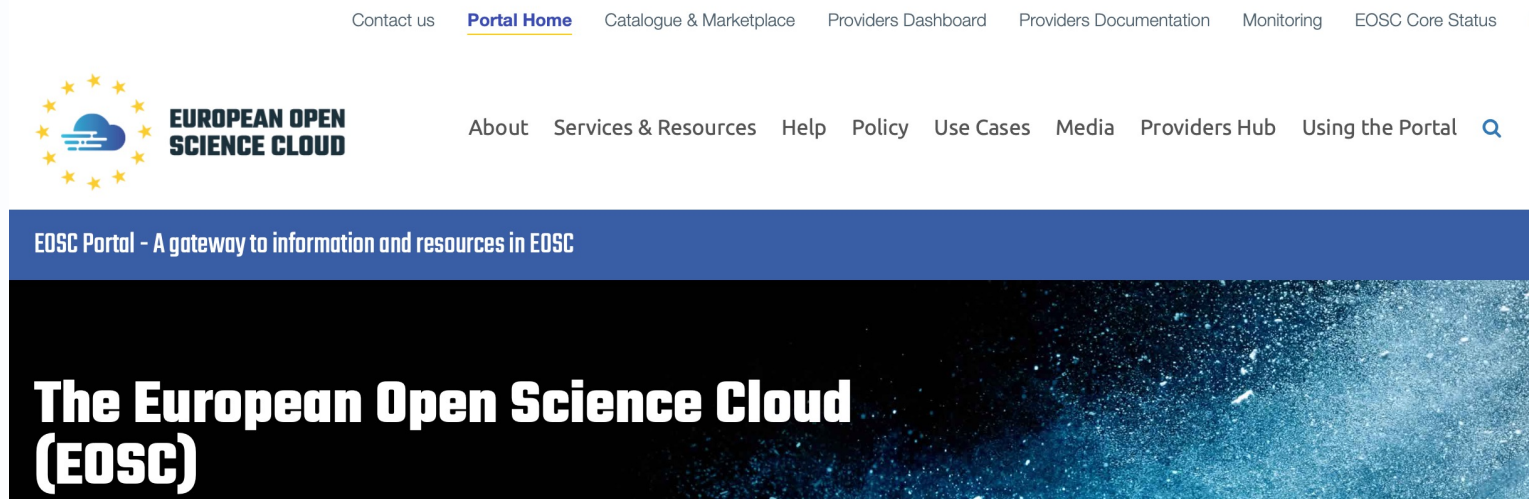
- The Baltic region use case includes case study areas in Vantaanjoki catchment, Finland and Daugava catchment, Latvia
- The Mediterranean region use case includes case study areas in Maresme county and Llobregat delta, Spain and at Malta
- The North Sea region use case includes case study areas in Mjøsa-Oslofjord, Norway and the Elbe catchment, Germany
- The Pan-European use case is focussing on biodiversity

All use cases are connected and have an upscaling perspective



AqualNFRA og EOSC

- AqualNFRA will ensure a seamless integration with EOSC mainly from two different perspectives
 - i) AqualNFRA as user of EOSC services (using services from the EOSC-Core as currently developed by the EOSC Future and the recently awarded FAIRCORE4EOSC projects) and
 - ii) AqualNFRA as data producer/service provider by offering data/services to the wider research community via the EOSC Exchange
- AqualNFRA services will be integrated with EOSC-Core AAI for both user and system-to-system authentication and authorisation
- Promote Open and FAIR data being the new norm for research and increasing the awareness of and knowledge about using the relevant EOSC services in the relevant communities



Collaboration and training activities

- AqualNFRA will engage with the communities represented within the project and liaise with other initiatives – including national RDIs, standardisation organisations, relevant EU partnerships, and relevant projects – to collect existing capacity building materials and approaches
- New domain-specific Open Educational Resources (OERs) for open and FAIR data will then be developed in collaboration with those relevant initiatives in workshops and hackathons
- Synergies and collaboration between initiatives and projects will be ensured through active participation in relevant groups in the EOSC partnership as well as alignment and interoperability with EMODNet, Blue-Cloud evolution, and the Digital Twin of the Ocean (DTO) projects and initiatives



A wide-angle photograph of a beach at dusk or dawn. The ocean is a deep blue-grey, with white foam from breaking waves washing onto a dark, pebbly shore. The sky is filled with soft, white clouds, and the horizon is visible in the distance.

**Thank you
for your attention**

**- and we look forward to
fruitful collaboration between
Blue-Cloud and AqualNFRA**

Partners

