Water Scenarios for Copernicus Exploitation (WaterForCE)

WWQA
World Water Quality Alliance

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Water - ForCE

ABSTRACT

Water-ForCE builds on existing capability and works closely with different sectors to co-develop the next generation of Copernicus services. Key to its success is the interaction with parallel workstreams and to this end working closely with GEMS/Water to ensure that they can support any additional activities and programmes of engagement to maximise the benefit, knowledge exchange and ultimate impact and relevance of the final Roadmap to support the ambitions of UNEP and the WWQA.

Water-ForCE also aims to work closely with research community, policy, industry and third sector to co-develop the Water-ForCE roadmap that will define the next phase of Copernicus Inland Water Services. The roadmap will:

- be benchmarked against community requirements;
- recommend services that should be delivered centrally by Copernicus and innovation opportunities that are better suited for business and research development;
- provide the strategy to ensure effective uptake of water-related services by end users; and
- further support the implementation of relevant directives and policies and evidence policy development.

This cross-disciplinary approach will align in situ and remote observation as this is essential to furthering the exploitation of operational observation platforms. A strategy to integrate in situ networks will be defined, integrating approaches to product validation and filling observation gaps including modelling and thus strengthen user confidence. Technical requirements for the future Copernicus sensors will also be specified for optimal inland water monitoring needs and future service development.

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Websites: www.unep.org/wwqa
https://waterforce.eu

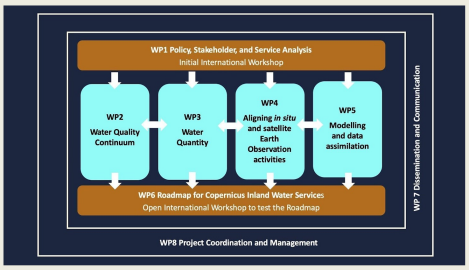
INTRODUCTION

Inland and coastal waters play a crucial role in human health and wellbeing, in the carbon and nutrient cycles and biodiversity. The **Copernicus Programme** is improving our understanding of the Earth system, including water quantity and quality.

Six **Copernicus Services** (Atmosphere, Marine, Land, Climate Change, Security, Energy) deliver water and hydrology services from Earth Observation, in situ and modelled data. However, there are needs and opportunities, including:

- needs for a comprehensive understanding of the global water cycle
- gaps and similarities in water related products
- opportunities for Service development to fill gaps
- product access for water users

STRUCTURE



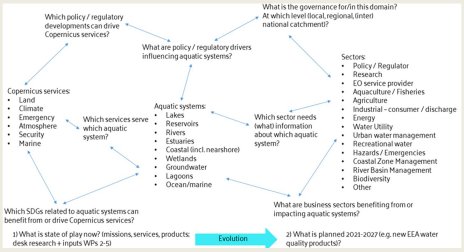
Water-ForCE consists of four overarching WPs and four technical WPs. The first overarching WP1 - "**Policy, stakeholders and service analysis**", analyses current and coming policies, end users needs, innovation needs, need for supporting water related SDG's, etc. The WP1 provides information and tasks to the technical WPs (WP2-5). The technical WPs are: "**Water quality continuum**" (WP2), "**Water quantity**" (WP3), "**Aligning *In Situ* and Satellite Earth Observation Activities**" (WP4) and "**Modelling and data assimilation**" (WP5). The second overarching WP is WP6 "**Roadmap for Copernicus Inland Water Services**" whose main task is summarising the findings of each technical WP and producing the first draft of the **roadmap.** The remaining two overarching WPs deal with **Communication and Dissemination** (WP7) and **Project Management** (WP8)

UPDATE ON PROGRESS

Despite the Covid-19 pandemic, WP1 along with each of the technical WPs have kept to schedule and will produce their recommendations for the Roadmap. This was achieved by mobilising relevant international communities into international working groups that developed their recommendations through workshops and other meetings.

ACHIEVEMENTS

Having identified key stakeholders and beneficiaries for Copernicus Water Services, WP1 mapped the interconnectivity between policies and strategies affecting public domains and business sectors relevant to the inland water cycle:



This provided the framework for three stakeholder workshops in 2021 to garner community need and next generation opportunity:

1. April '21: Stakeholder Input on the Evolution of Copernicus Water Services. *62 attendees but under represented by commercial users, industrial sector and water for agriculture.*
2. June '21: Water Innovation Europe Conference 2021 (14-18 June), participation through a Water-ForCE virtual booth.

To take account of future needs of key stakeholders, a hybrid workshop was held:

3. October '21: Developing a roadmap for Copernicus water component. Copenhagen.
   - **DG DEFIS developments and implementation of the Commission's policies**
   - **Copernicus Technical Developments and Needs**
     - EEA, JRC and ESA representers
   - **Policy Developments and their Impact on Copernicus Services**
     - DGs representers (ENV, RTD, MARE, AGRI)
     - WATER4ALL Partnership
   - **Copernicus Services Present and Future**
     - Copernicus Services
     - International Organizations, incl. UNEP GEMS/Water & WWQA

FUTURE OUTLOOK: ROADMAP DEVELOPMENT

The development of the Roadmap (WP6) commences in 2022, a draft outline has been developed and circulated for review. The Roadmap will be provided for public discussion and consultation in an international workshop in spring 2023:

1. Introduction	
a. Overview of Copernicus services for Water [existing Service provision]	
b. Setting the scene for priorities and challenged raised (by call + workshops)	
c. Objectives of the Roadmap	
2. Evolving needs and requirements	
a. Drivers (Water-ForCE community)	b. User Needs & requirements
c. The Copernicus value for water	
3. Copernicus for Water	
a. Copernicus state-of-the-art	b. The in situ component
c. Evaluating / mapping existing Copernicus capability	
4. The opportunities	
a. Gaps and links with Copernicus	b. The Bottlenecks
c. The opportunities	
5. Priorities & Recommendations (Copernicus evolution)	
a. New developments & products	b. Technical requirements
c. In-situ component	d. Remote Sensing data accessibility
e. Assimilation and modelling	f. Innovation and achieving potential
g. Capacity building	h. Delivering on SDGs and climate
i. Regional priorities	j. Policy and governance