

Abstract

While wetlands are individual ecosystems with permanent or temporary waters, the novel term “wetlandscapes” refers to systems of wetlands that are hydraulic, hydrological, and ecologically coupled. Although wetland ecosystem services have been investigated for decades, the spatial aggregation of wetlands into wetlandscapes invites their reconsideration. This is most relevant concerning various types of services, such as food and water security services provided to ecosystems and communities beyond the direct area of influence.

The main objective of DOWES is to resolve the interlinkages between water availability in wetlandscapes, their responses and stressors, and the provision of ecosystem services within and beyond their area of influence through synthesis across multiple wetlandscapes. Comprised of six well-known institutions across Sweden, Italy, France, the United Kingdom, and Brazil, DOWES will, in five work packages, address the main objective across six iconic wetlandscape ecosystems.

- The first determines high-resolution changes in the hydrological regime using the latest radar and altimetric missions.
- The second relates water availability to wetlandscape ecosystem responses and stressors.
- The third develops a participatory approach to identify perceptions of potential cultural ecosystem services.
- The fourth adds a layer of complexity by quantifying the provision of ecosystem services of wetlandscapes beyond the area of influence
- Finally, the fifth work package combines these four to develop metrics and guidelines to track and quantify the provision of wetlandscape ecosystem services.

DOWES addresses mostly Topics 1 and 2 of the Water4All 2023 Joint Transnational Call across three subtopics: 1.1., 1.4, and 2.1 by quantifying overlooked ecosystem services, finding how these ecosystem services change in time and space and their relationship with human and climatic drivers. The Project is also aligned with the main theme of the call as it studies wetlandscapes, which are considerably understudied compared to other types of water resources. It also couples with the main vision of Water4All by focusing on water security by providing ecosystem services, using state-of-the-art technologies such as hydrogeodesy, paleolimnology, atmospheric moisture tracking, and participatory methodologies. Stakeholder engagement is ensured through all project phases in a co-creation approach to developing a joint understanding of the wetlandscape concept and services and allows for more targeted environmental and social impacts. The participatory approach involves and disseminates knowledge among wetland researchers, local and national authorities related to wetlands, international wetland organizations like the Ramsar Convention and Wetlands International, and the general public via stop-motion animation videos for all ages. DOWES will bring a breakthrough in the quantification and assessment of wetlandscape ecosystem services (WES), even beyond their direct area of influence, to provide environmental authorities with the tools and know-how to expand the protection, restoration and management of these valuable ecosystems.



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- POLITECNICO DI MILANO - ITALY
- MAMIRAUÁ INSTITUTE FOR SUSTAINABLE DEVELOPMENT - BRAZIL
- INSTITUT DE RECHERCHE POUR LE DÉVELOPPEMENT - FRANCE

► Funding organisations

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