CERTO
Copernicus Evolution – Research for harmonised and Transitional water Observation

Tagus Estuary case study

The Tagus is a major estuary in Europe, located within the city limits of Lisbon, Portugal. The estuary is fed by the Tagus River, which originates in Spain and eventually merges with the Atlantic Ocean.

Industrial activity upstream and the escalating demand of the tourism and fishing industries have underscored the need for vigilant and sophisticated water quality monitoring systems to safeguard this critical ecosystem. Reliable monitoring systems using the latest tools are essential to maintain the health of this significant estuary.

CERTO in the Tagus

The CERTO project has advanced water quality monitoring in the Tagus Estuary by combining historical data analysis with innovative collection and interpretation techniques. This multidimensional approach integrates fieldwork and Copernicus satellite data to provide a comprehensive understanding of estuary health.

CERTO succeeded in collecting a vast array of *in situ* and remote sensing data, providing new means for monitoring water quality, following the concerns and aims of Tagus Estuary monitoring entities. Furthermore, it contributed to increase environmental citizen awareness by collaborating with the tourist company Lisboat.

CERTO on the Lisboat tourist vessel

CERTO has installed radiometers on the Lisboat tourist vessel to measure light reflecting from the water and incoming sunlight. Combined with satellite data, this provides a comprehensive view of the optically complex Tagus waters. The ferry's regular crossings enable CERTO to track seasonal and event-driven changes in water quality. QR codes give passengers access to further information on CERTO's work.

> *"Hosting CERTO instrumentation allows us to contribute data essential for monitoring Tagus Estuary water quality. The project's findings will inform evidence-based management of the estuary, benefiting the health of this vital ecosystem."*
>
> *Lisboat*

Benefits

For regulatory authorities:

- Enhanced water quality monitoring
- Open access to satellite data
- Detection of harmful elements, such as algae intrusions.
- Enhance recreation through water resource management
- Ensure clean, safe waters to sustain growing tourism
- Inform policy decisions for sustainable development

For local residents:

- Assurance of clean water for recreation
- Protection of the natural environment
- Fosters sustainable tourism and the local economy
- Open access to environmental data

What is CERTO?

CERTO (Copernicus Evolution - Research for harmonised and Transitional water Observation) is an EU Horizon-2020 project that aims to improve water quality monitoring in transitional waters in support of EU directives. The project brings together industry, monitoring agencies, and scientists to develop innovative indicators that can be applied to coastal, transitional, and inland waters. By integrating *in situ* sampling, satellite data, and historical records, CERTO advances water quality data collection and interpretation across diverse aquatic environments.

Advancing water quality monitoring

The CERTO project has advanced water quality monitoring through innovative use of water colour data from the Copernicus satellites. By categorising water types based on optical signatures, CERTO has improved water quality assessment. This approach, currently being used across six European estuaries, has the potential to extend globally, creating a comprehensive network of water monitoring.

CERTO is progressing water quality monitoring by providing a prototype that can offer near-real-time data. It meets the immediate needs of researchers and stakeholders while enriching the pool of assessment tools with new indicators for more accurate and precise evaluations. CERTO contributes to scientific inquiry through shared insights in publications, continually informing and enhancing practices in water quality monitoring.

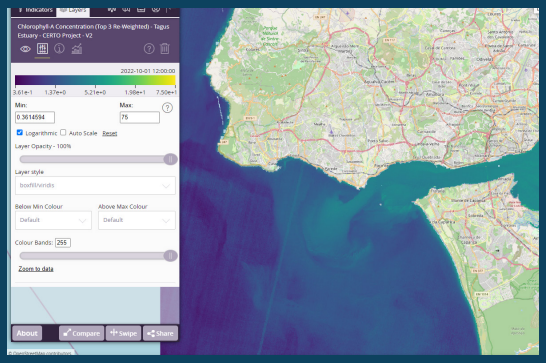
Sentinel 2B satellite image of the Tagus Estuary.

The CERTO data portal

CERTO has created a prototype system, designed to integrate seamlessly with existing Copernicus services. This innovative system demonstrates the potential to enhance and expand Copernicus services and their broader impact.

CERTO data can be accessed through a dedicated data visualisation portal, providing information and crucial insights into water quality. This offers data in an easy to access format.

Whether you're conducting scholarly research, supporting environmental initiatives, or seeking knowledge about the state of local water systems, the portal is a valuable resource that enables active participation in water quality monitoring and conservation efforts.



The CERTO data visualisation portal: https://engage.certo-project.org/tagus/

CERTO

www certo-project.org @certo_project

comms.certo@pml.ac.uk

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