EARSC
European Association of Remote Sensing Companies

EARSC Statement

Water pollution – EU rules on urban wastewater treatment

The European Association of Remote Sensing Companies (EARSC) is a trade association based in Brussels, representing the European downstream services sector. EARSC counts more than 135 members across 25 countries of Europe.

EARSC welcomes the European Commission's consultation on the Proposal for a Directive of the European Parliament and of the Council concerning **urban wastewater treatment**. Particularly we would like to highlight at the section on **monitoring and reporting**, the need for new monitoring parameters that should stimulate the use of innovative technology and integration with existing efforts to improve monitoring practices such as the **use of satellite data.**

Water quality monitoring is fundamental to sustainable water management. It provides essential data and information, which characterize the physical, chemical and/or biological state of water resources.

With satellites optically-active water quality parameters, most commonly turbidity, total suspended solids, Secchi disk depth, coloured dissolved organic matter, Chlorophyll-a, potentially harmful algal blooms (cyanobacteria), surface water temperature and trophic state index can be measured. For the update on the EU rules on urban wastewater treatment, satellite-based measures can support the defined monitoring requirements of discharges from urban waste water treatment plants subject to Article 6 of the Directive (Annex 1) by providing total suspended solids. These can be measured up to several times daily (depending on cloud cover) in spatial resolutions ranging from 3-300m, applicable also for small water bodies > 1 ha.

The required other parameters that can be related to them based on regional correlation, including biochemical oxygen demand, chemical oxygen demand, total organic carbon, dissolved organic carbon, nitrate or phosphorus. The measurement via satellite is more cost-efficient compared to traditional sampling methods which usually require personnel effort in the field and may also include extensive analysis work in a laboratory.

The effective monitoring of wastewater will require the use of multiple types of data and satellite-derived data together with modern data processing and analytics, offer new opportunities to track these treatment[1]s. Online solutions integrating different kinds of data for decision making are already in operation for bathing water monitoring or disaster mapping and can be extended to waste water facilities. The analysis of water treatments is vital to monitor and mitigate risk and satellite information may help on the production of data continuity, more consistent, accurate, affordable, and useful data that can improve the monitoring of wastewater treatments or predicting sewage uncontrolled discharges or sewages outflow after increased rainfall. This actionable information helps on the monitoring and shaping of reporting methods, policy and tools. These insights can inform municipalities and help determine the most effective paths for action[2].

Improving and managing universal services of water and sanitation in a holistic manner is critical to achieving the Sustainable Development Goals (SDGs). **Satellite-derived data** is a reliable, continuous, and systematic source for monitoring water quality across extensive spatial and temporal scales which is essential to characterize waters and identify changes or trends in water quality over time. EARSC supports the integration of new monitoring practises such as the use of satellite-derived data and added-value services as operational solutions to support the water waste treatments and contribute to taking appropriate measures to achieve progress evaluation of the UN 2030 Agenda for Sustainable Development related to water and freshwater ecosystems **SDGs 6**. EARSC remains at your disposal to work together on this objective.

[1] Satellite sensors are capable of detecting biophysical signatures associated with the wastewater, enabling monitoring of environmental impacts over a greater spatial extent than in situ sampling alone. Thermal satellite sensors (e.g. Sentinel-3) can measure changes in the Water Sea Temperature associated with the surfacing plumes, while optical sensors (e.g. Sentinel-2) changes in water color due to increased concentrations of wastes. Moreover, synthetic aperture radar, or simply SAR, instruments (e.g. Sentinel-1) can be used to identify and track the wastewater plume through changes in surface roughness. Some of the required products are generated operationally by Copernicus Marine Environment Monitoring Service (marine.copernicus.eu).

[2] Water Quality Management in Germany (https://earsc.org/sebs/all-cases/water-quality-management-in-germany/) and Water Quality Management in Finland (https://earsc.org/sebs/water-quality-in-finland/) and Aquifer Management in Spain (https://earsc.org/sebs/aquifer-management-in-spain/)