Benefits and risks of treated wastewater storage for irrigation

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Context

- Water scarcity is increasing in semi-arid and arid areas
- Domestic wastewater can be reused for agricultural irrigation
- Treated wastewaters contain nutrients beneficial for agriculture, as well as biological and chemical pollutants
- **Treated water storage** is necessary before use

Ait-Mouheb et al. 2018 – Mclennan et al. 2024

Crédit photo : G Rudi

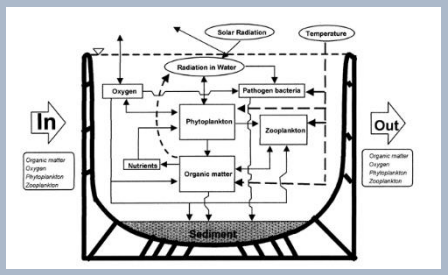
Scientific questions and objectives

Water quality for reuse in agriculture is regulated, however, we don't know accurately how water quality evolves in reservoirs, and what are the determinants of the evolution of the quality. Starting from a modelling work initiated by Carmelo Jean-Louis (PhD), your future objective will be to calibrate a water quality model on data acquired in 2 REUSE reservoirs in 2023 and 2024. You will also participate to data acquisition and laboratory work in 2025.

Water sampling in Murviel reservoir

Crédit photo : N Ait Mouheb

Conceptualization of water quality evolution in a reservoir by Friedler et al. (2003)



Skills developed by the trainee

- Understanding of the processes relating to the evolution of water quality in a storage reservoir
- Calibration methods for multi-parameter models
- Coding in R and Scilab
- Experimental methods for measuring water quality over a wide range of quality parameters and characterizing hydrodynamics
- Water samplings in different reservoir configurations

IN SUMMARY, THE TRAINEE WILL DO BOTH FIELD WORK, LAB WORK AND MODELLING

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