



Limnología  
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## Bio-optical modelling of reservoirs: a solution for a rapid water quality assessment?

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Reservoirs are subject to anthropogenic stressors, becoming increasingly degraded. However, this ecosystem provides habitats to a large amount of species as well as critical ecosystem services, making it important evaluate changes within reservoirs and understand their magnitude and implications towards the ecosystem. In this study we intend to validate the utility of remote sensing techniques to assess the ecological potential of Portuguese reservoirs, established by the Water Framework Directive (WFD). WFD defines several metrics to assess water quality requiring field work followed by laboratory analyses, making a process slow and expensive. However, Remote Sensing techniques provide a complementary, cost effective and practical solution that has a broad coverage and can be frequently executed with expressive results. Thus, this study aims to determine the relationship between certain Water Quality Parameters (WQP) - chlorophyll-*a*, phycocyanin and turbidity - and digital data from the Sentinel-2 satellite to estimate and map these WQP. Sentinel-2 Level-1C satellite images dating from January 2017 to December 2018 were used as inputs regarding water quality via image processing chain based on the “waterquality” R package, in order to analyse spatial and temporal differences between reservoirs. Indeed, after validation with *in situ* data, these estimates can help to predict future evolutions of water quality in reservoirs, as well as understand the significance of anthropogenic stressors and environmental pressures in the water bodies. Therefore, with global climate changes in mind, this digital tool is undeniably needed for the evolution of limnetic knowledge and its integration with other fields of research.

**Preferred Session:** SS3. Water quality of reservoirs: monitoring tools and challenges for the future

**Type of communication:** Poster: X

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