EVALUATING THE INFLUENCE OF TEMPERATURE AND REDOX CONDITIONS DURING THE INFILTRATION IN A RECHARGE POND LOCATED IN THE LLOBREGAT RIVER BASIN

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Both clogging and temperature play a central role in the recharge efficiency of an infiltration pond. Whereas bioclogging is mainly driven during warm periods (spring and summer) and limits the infiltration rate, the high temperatures of those periods drive down the water viscosity – increasing the effective hydraulic conductivity – and, consequently, enhancing the infiltration rate. Besides quantity aspects, bioclogging formation also influences the quality of the recharged water. The formation of photosynthetic organisms in the infiltration pond implies an incorporation of organic matter (normally in form of labile organic carbon) enhancing redox processes and thus also favouring the attenuation of emerging organic compounds and nutrients.

Considering this, the goal of this work is to evaluate the role of bioclogging in 1) the infiltration rate in an infiltration pond, and 2) the redox reactivity. To achieve these goals, we have developed an integrated model of flow, heat transport and reactive transport in an infiltration pond. The model, developed in HP1, reproduces the conditions of an infiltration pond located in the Llobregat River Basin (Castellbisbal, Spain). The model was fitted with one-year high resolution data (in space and time) of hydraulic levels, temperature and *in-situ* redox potential measurements. Data from four hydrochemical sampling campaigns was also included to simulate the biogeochemical processes occurring between the pond and the aquifer.