



## **Spatial resolution effect on the simulated results of watershed scale models**

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Numerical models are useful tools for water resources planning, development and management. Currently, their use is being spread and more complex modeling systems are being employed for these purposes. The adding of complexity allows the simulation of water quality related processes. Nevertheless, this implies a considerable increase on the computational requirements, which usually is compensated on the models by a decrease on their spatial resolution.

The spatial resolution of the models is known to affect the simulation of hydrological processes and therefore, also the nutrient exportation and cycling processes. However, the implication of the spatial resolution on the simulated results is rarely assessed.

In this study, we examine the effect of the change in the grid size on the integrated and distributed results of the Alegria River watershed model (Basque Country, Northern Spain). Variables such as discharge, water table level, relative water content of soils, nitrogen exportation and denitrification are analyzed in order to quantify the uncertainty involved in the spatial discretization of the watershed scale models. This is an aspect that needs to be carefully considered when numerical models are employed in watershed management studies or quality programs.