



Simulating the effects of land use and cover change on hydrological processes and water balance in the headwater catchments of the Llobregat River (NE Spain)

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Abandonment of old agricultural fields during the last decades is one of the main causes of changes in the vegetation cover in the Pyrenean headwater catchments, inducing the vegetation succession from old crop fields and meadows covered with short vegetation towards shrub and forested covers, and an increase of forest canopy densities. Under this situation, important changes on the dominant hydrological processes and on water resources are expected, due to the increased evapotranspiration by forest cover. This study presents the results of a simulation of the effects of two types of vegetation cover (forest and non-forest) on the water balance of two headwater catchments of the Llobregat River (NE Spain) using the HYLUC model. As a first step for testing the ability of the model for prediction of the water balance under possible land use/land cover scenarios, a split sample calibration-validation test was performed in one of the headwater catchments. Subsequently, the parameter transferability between both catchments was tested.