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Effects of land use changes on water production among the 2050 horizon in the Central Spanish Pyrenees

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The recently observed decline in water production from Mediterranean rivers has reinforced the necessity to study the effect of land management strategies on streamflows in the Mediterranean mountains. In Spain, due to the process of natural revegetation (as a result of land abandonment in rural areas), and to climate variability, annual streamflows are expected to show an important decrease during the next decades.
This study implements the Regional Hydro-Ecological Simulation System (RHESSys) to simulate streamflows in three highly monitored small catchments located in the Central Spanish Pyrenees.
The model is calibrated based on daily streamflow data, vegetation, daily precipitation, minimum and maximum temperature among other climatic and physical parameters. Then, two land use scenarios of natural revegetation and forest, together with changes in climatic variables have been considered to study the effects of land use change on water production among the 2050 horizon.

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