



## **Comparative analysis of water availability for agriculture in Southern European basin under different climate and policy scenarios**

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We present the analysis of water availability under climate change in six representative basins of Southern Europe: Duero-Douro, Ebro, Guadalquivir, Po, Maritsa-Evros and Struma. Water availability is computed with the Water Availability and Adaptation Policy Analysis (WAAPA) model. WAAPA performs the simulation of water management in the basin at the monthly time scale, accounting for streamflow, reservoir storage, evaporation and environmental flows. The model is used to obtain the demand-reliability curve in every subbasin of the river network by modifying the water demand and computing the corresponding supply reliability. Water availability is determined by fixing a required reliability, which depends on the type of demand under analysis. We obtained potential water availability for European rivers under different climate scenarios and management strategies. We then focus specifically on water availability for agriculture. For simplification we are assuming only two types of demands: urban and irrigation. Water is first allocated to urban demands following the established priority and the remaining resources are allocated to agriculture. If water availability is not enough to satisfy all irrigation demands, management measures are applied until a balance is reached between resources and demands. We present an analysis of possible management measures to face water scarcity in the long term scenario. These management measures are globally evaluated for the selected basins in one representative climate scenario. The analysis shows that, although the expected impacts of climate change on water availability for agriculture are high, there are policy options that can partially compensate for those impacts. However, a reduction of agricultural demand is unavoidable in some areas.