



Sensitivity of Mediterranean groundwater resources to potential climate futures

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A large fraction of the Mediterranean water supply originates from karst aquifers that evolved through the dissolution of carbonate rock. Climate simulations indicate that the Mediterranean will experience a strong increase in temperature and a significant decrease in precipitation within the next 100 years. To be prepared, policy-makers need quantitative and reliable estimates of potential changes to karst water resources. In this study we present the result of a very first attempt to quantify karst water resources over the whole Mediterranean region. Instead of considering groundwater volumes, we consider the flux of water into the aquifer, called groundwater recharge, as a useful indicator for groundwater sustainability. We developed a process-based karst recharge model that is driven by large-scale meteorological observations or downscaled climate scenarios. Using a new metric for quantifying the sensitivity of recharge to climatic changes (termed recharge elasticity) we can explore the sensitivity of Mediterranean karstic groundwater resources to future climatic boundary conditions.