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The impact of changing climate conditions on the hydrological behavior of several Mediterranean sub-catchments in Crete

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Climate change, although is already happening, consists of a big threat capable of causing lots of inconveniences in future societies and their economies. In this work, the climate change impact on the hydrological behavior of several Mediterranean sub-catchments, in Crete, is presented. The sensitivity of these hydrological systems to several climate change scenarios is also provided. The HBV hydrological model has been used, calibrated and validated for the study sub-catchments against measured weather and streamflow data and inputs.
The impact of climate change on several hydro-meteorological parameters (i.e. precipitation, streamflow etc.) and hydrological signatures (i.e. spring flood peak, length and volume, base flow, flow duration curves, seasonality etc.) have been statistically elaborated and analyzed, defining areas of increased probability risk associated additionally to flooding or drought. The potential impacts of climate change on current and future water resources have been quantified by driving HBV model with current and future scenarios, respectively, for specific climate periods.
This work aims to present an integrated methodology for the definition of future climate and hydrological risks and the prediction of future water resources behavior. Future water resources management could be rationally effectuated, in Mediterranean sub-catchments prone to drought or flooding, using the proposed methodology.

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