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Future Trends of Water Availability in the Island of Crete

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This paper discusses the effects of climate change on water availability in the island of Crete, Greece. For this purpose, a lumped hydrological model (Sacramento) is used to obtain the water balance on individual watersheds on a monthly basis. Sacramento is calibrated for 15 gauged basins using 20 years of monthly areal precipitation, areal potential evapotranspiration and point runoff records using a modified Nelder-Mead optimization algorithm. A parameter regionalization methodology is used for defining the components of the monthly hydrologic balance in the 115 major ungauged basins of the island, with a result the runoff, infiltration and actual evapotranspiration estimations. This serves as an integrated spatially and temporally distributed hydrological balance model for the whole island and provides the monthly water availability. Output parameters from REMO regional climate model under SRES A1B climate change scenario (up to 2100), were used as input to the model in order to provide water availability future trends. Results show a substantial drop in water availability.