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## Evaluation of three different regional climate change scenarios for the application of a water balance model in a mesoscale catchment in Northeast Germany

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**Abstract.** Future climate changes might have some impacts on catchment hydrology. An assessment of such impacts on e.g. ground water recharge is required to derive adaptation strategies for future water resources management. The main objective of our study was an analysis of three different regional climate change scenarios for a catchment with an area of 2415 km<sup>2</sup> located in the Northeastern German lowlands. These data sets consist of the STAR-scenario with a time period 1951–2055, the WettReg-scenario covering the period 1961–2100 and the grid based REMO-scenario for the time span 1950–2100. All three data sets are based on the SRES scenario A1B of the IPCC. In our analysis, we compared the meteorological data for the control period obtained from the regional climate change scenarios with corresponding data measured at meteorological stations in the catchment. The results of this analysis indicated, that there are high differences between the different regional climate change scenarios regarding the temporal dynamics and the amount of precipitation. In addition, we applied a water balance model using input data obtained from the different climate change scenarios and analyzed the impact of these different input data on the model output groundwater recharge. The results of our study indicated, that these regional climate change scenarios due to the uncertainties in the projections of precipitation show only a limited suitability for hydrologic impact analysis used for the establishment of future concrete water management procedures in their present state.

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