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Assessment of RCM climate change scenarios for hydrological impact studies in Belgium

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This work is the first part of the CCI-HYDR project dealing with climate change impacts on hydrological extremes. In this phase of the project changes in precipitation and potential evapotranspiration are considered. All Regional Climate Model precipitation data for Belgium for the control and A2 scenario simulations of the PRUDENCE database are processed. The control simulations for precipitation are tested against observations integrated over each model grid cell. Quality criteria for the simulations are introduced and model performance is assessed. Data from the PRUDENCE database are also used to calculate the potential evapotranspiration with the Penman formula for locations in Belgium. Then, potential evapotranspiration is calculated using observations and compared against the results from model data. Finally, RCM predictions for precipitation and evapotranspiration change, as a consequence of climate change, are presented. The suitability of the ensemble of PRUDENCE derived scenarios for A2 SRES emissions is discussed.