



Modelling hydrological effects of climate change on a global scale

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Multiple studies investigating the hydrological effects of climate change have been performed based on Global Circulation Model (GCM) outputs. However, most of these studies included only one or a few GCM's and focused on single catchments or specific regions. In this study we attempt to use data from all GCM's, for which complete datasets are provided by the IPCC data portal, and investigate the hydrological effects on a global scale to see in which regions detectable trends occur. The hydrological runs are performed with the global distributed model PCR-GLOBWB, developed at Utrecht University. In the first stage of this project the model has been run for the reference period 1961-1990 with the different GCM datasets. From these runs we obtained an indication of the skill of the different climate models to reproduce current hydrological conditions. Results have been compared with measured discharges from the GRDC dataset and with a control run, where the hydrological model is run with the CRU dataset downscaled with ERA40 re-analysis data. Notable is the spread in results for the different GCM based runs, emphasizing the large uncertainty.