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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Future discharge drought across climate regions around the world modelled with a synthetic hydrological modelling approach forced by three General Circulation Models" *by* N. Wanders and H. A. J. van Lanen

Anonymous Referee #3

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This paper analyzes the hydrological drought using tree CMIP3 GCMs that provided driving data for the EU WATCH FP6 GHMs. The manuscript is well written and methods are technically sound. However the data used for the analysis are somewhat obsolete. The manuscript can be considered for publication after a major revision. The major comments follow:

Major Comments

1) The analysis is based on just the three GCM projections from CMIP3 which needs

to be extended to more GCMs ($\sim$ 20) from CMIP5 projections to evaluate uncertainty coming from CMIP5 projections. The statistical bias correction methodology that was used to correct the 3 WATCH GSMs for biases can be redone using WFDEI (see next comment).

2) The WFDEI observational dataset that is base to ERA interim reanalysis project should replace the WFD dataset.

3) GCMs used in the analysis were interpolated to 50 km to match the spatial resolution of the WATCH forcing data. Simple interpolation may result in inconsistencies in daily precipitation statistics (like number of rainy days), therefore, statistical downscaling should be performed.

Other comments:

1) The presentation of the results is lean. The global results can be provided in maps. Moreover there is no map to show the spatial distribution of the "major climates".

2) Finally I would like to bring to authors' attention the ISI-MIP community modelling effort from where you can find CMIP5 driven GHM runs (http://www.isi-mip.org/).

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 1, 7701, 2013.