Review of the paper

Scaled distribution mapping: a bias correction method that preserves raw climate model projected changes.

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This paper treats an important problem - how to bias correct RCM output to be used for possible impact assessment. The authors argue that the frequently preferred quantile mapping is under circumstances leading to unreasonable results - therefore another more *robust* method is needed. The scaled distribution mapping (SDM) suggested by the authors is a sophisticated version of the classical alteration of sequences by multiplication of precipitation and linear scaling of temperature. The method is reasonable but it is not proved that it is really better than others. Some artefacts are removed - therefore some others (not detected or not presented) are introduced.

The section describing the *impossibility* of comparing bias correction methods is interesting, but at the same time the example is discouraging. If models for present climate have such biases in predicting the Δ changes than how can we believe their their Δ changes for the future are reasonable? I missed more discussion on this problem.

The problem physical consistency of bias correction was discussed by the other referee Uwe Ehret. I am surprised that the authors do not consider the problem of consistency on different spatial and temporal scales. From the title I expected discussions in this direction. Hydrological applications require spatial data, therefore spatial correlations should also be considered. Individual corrections do not mean that the correction is correct over different spatial scales. In a previous paper (Bardossy and Pegram 2012) we investigated the spatial coherence of RCMs and found significant differences between model and observations. This problem becomes more severe if the bias corrected output is applied in hydrology. The same also applies for temporal aggregations. Bias correction on a single scale at a single location is an interesting excercise, but may be biased on other scales.

The choice of 0.1 mm daily precipitation threshold is in my opinion not appropriate. Precipitation amounts between 0 and 1 mm are very inaccurate in measurements. They may even contaminate the estimation of the precipitation distributions. I would suggest to use a mixed approach - fitting only above the 1 mm limit.

The gamma distribution for daily precipitation is a reasonable choice, but not for the extremes. It is anyhow very unusual to use the name return periods for relatively frequent events. Please use another notation

The paper is very difficult to read. In my opinion the methods presented in the paper are described in a difficult to follow manner. I spent a lot of time to understand, and finally found that the methods are not very complicated themselves. I personally do not like equations written in a programming language style. There is a correct mathematical description with equations and not using words like sort etc.

In conclusion I find the paper interesting but not well presented and not addressing important issues. Therefore I suggest a major revision.

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Bárdossy, A. and G. Pegram, Multiscale spatial recorrelation of RCM precipitation to produce unbiased Climate Change scenarios over large areas and small, *Water Resources Research*, **48**, W09502, doi:10.1029/2011WR011524, 2012