Manuscript: hessd-9-6185-2012: Technical Note: Downscaling RCM precipitation to the station scale using quantile mapping – a comparison of methods

Major remarks

Within the last few year, the bias correction of climate model output, especially precipitation, has become a hot topic within climate impact research. The authors present a follow on to the study of Themeßl et al. (2011) who compared several bias correction approaches and concluded that quantile mapping was the best performing approach for removing precipitation biases, also for the extreme part of the distribution. Given the diversity of existing quantile mapping methods, the authors are reviewing and comparing a range of these methods using bias corrected RCM precipitation and observations of 82 precipitation stations in Norway. In this respect the study is a valuable contribution to the bias correction topic.

One major remark is related to the calculation of the skill scores that "were estimated using a 10-fold cross-validation (CV) (e.g. Hastie et al., 2001) and the mean CV error is reported." Even though a reference given is given for the 10-fold CV method, I don't have a clue what this really means. This CV method seems to be rather important for the calculation of the skill scores (p. 6193 – line 1: "scores are estimated using a 10-fold CV, which reduces the risk of over fitting effectively."). Therefore, the method and its value for the skill scores should be explained in more scientific (not just technical) detail.

With regard to the conclusions section: You evaluated the different QM methods for the climate conditions of Norway (more wet). Can you speculate how your results might change for other climates, e.g. more arid climates?

The paper is well structured and concisely written. Therefore, I suggest accepting the paper for publication as only minor revisions are necessary.

Minor Comments

In the following suggestions for editorial corrections are marked in *Italic*.

Title – p. 6185
Remove "Technical Note:" from title.

Sect. 2 – p. 6187 - line 17
… *precipitation, respectively*.

Sect. 2.2 – p. 6188 - line 22
…parametric *transformations was* explored:

Sect. 3.2 – p. 6191 - line 1
… the *comparison* of …

Sect. 3.2 – p. 6191 - line 13
… precipitation *extremes, other* sources …

Sect. 3.3 – p. 6192 - line 26
…related *to* their … … not *rely* on …

<u>Fig. 2 – p. 6199</u>
Legend description and panel titles (i.e. the respective QM method) are too small. Increase character size!