

Review for "Analyzing the future climate change of Upper Blue Nile River Basin (UBNRB) using statistical down scaling techniques" by D. F. Mekonnen and M. Disse

I appreciate the reply of authors to my questions and requests. However, there are significant issues I missed while reviewing the revised manuscript at the second round.

1. You mentioned that multi-model approach was adopted to evaluate uncertainty in climate projections. However, you applied two statistical downscaling methods to different GCMs, i.e. LARS-WA for CMIP3 while SDSM for CMIP5. In this way, in my opinion, fairly intercomparison of downscaling methods cannot be achieved. You need to apply the methods to same GCMs forced by same emission scenarios (e.g. RCP4.5 or RCP8.5) and then intercompare the skill of methods and evaluate the uncertainty of climate projections by downscaling.
2. The authors mentioned that two popular GCMs were selected due to providing daily climate variables with a better resolution, showing high performance and representing CMIP3 and CMIP5 projections. However, the performances of GCMs vary with regions due to different physiographic and climatic characteristics, model parameters, and so on. In my understanding on CMIP5 climate projections, there are 30 GCMs that provide daily climate variables. The authors need to address the limitation of this study in the number of GCMs selected in terms of uncertainty of climate projections.
3. In Table 4, the skill of SDSM is evaluated by various performance measures. However, R2, MAE, RMSE, NSE, and Bias are measured by daily or monthly sequencings of observed and simulated values during the historical period. However, it cannot guarantee that GCMs reproduce historical daily sequencing, actually cannot reproduce it but distributions for a historical period. The authors need to change performance measures if daily (or monthly) sequencings were directly compared with observations to calculate the measures although the results in Table 4 perform well.
4. In the figures that present climate projections downscaled by two methods (e.g.

Fig. 4 and 5), I would like to see the spread of projections for future periods. I am not interested in the performance of individual GCM.

5. LARS-WG showed less skill in reproducing variance, which seems very critical in generating future climate variability in projections, specially more critical for wet season (summer). The authors need to address this fact based on results related to this feature in LARS-WG.

Below find more specific comments that highlight the weakness of the format and structure of the paper presentation.

- 1) In Figure 4, box plots need to be modified.
- 2) The order of figures should be rearranged, e.g. Fig 6 and Fig 7 should be Fig 9 and Fig 6, respectively.