The authors thank Dr Renata Romanowicz for her constructive comments on the manuscript. We agree with most of the points of view she expressed and we explain how we will modify the text to account for her comments.

Reviewer #1 (Dr Renata Romanowicz)

Comment 1) The first question is that those scenarios as not equally probable. In their conclusions the authors should distinguish between different gas emission scenarios rather than treat them as equally probable. This distinction should be clearly stated in the conclusions. At the moment Table 4 is not easy to understand and might be misleading.

Reply from authors: We used seven climate scenarios consisting of different combinations of greenhouse gas emission scenarios, GCMs and RCMs. Five of the seven climate scenarios use the same A1B emission scenario. This is due to the available bias corrected data. It would be better to have a larger ensemble of RCMs. For clarity in the revised manuscript, the greenhouse gas emission scenarios will be added to Table 4 (e.g. CS 1(A1B))

Furthermore, the reviewer indicates that the probability of occurrence of emission scenarios like A1B, A2, B1 etc. might be different. In the IPCC special report on emission scenarios by Nakićenović and Swart (2000), it has been clearly stated that all A and B emission scenarios are equally valid with no assigned probabilities of occurrence.

Comment 2) The other important point is the inter-relationship between the low flow indices used in the study. The authors are asked to discuss that issue both from the theoretical and experimental points of view. The same question regards the GCM/RCM outputs. It would also be of interest to see how the scenario inputs are correlated. The authors summarise their analysis using the word "uncertainty" meaning "variability". From the conclusions only, one can wrongly understand that an uncertainty analysis was carried out, whilst the paper presents only an analysis of possible variations in low flow indices based on the very few simulation results. I would suggest changing the word "uncertainty" in the conclusions (page 6828) to "variability" and/or comment on that issue.

Reply from authors: We agree with the reviewer that the inter-relations between the three indices should be discussed in the revised manuscript. The correlation coefficients between

the three indices estimated from 134 catchments show that the SR and WP indices are significantly negatively correlated. However, Figure 3 in the manuscript shows that the sub-catchments with lower SR values (rainfed sub-catchments) show higher persistence. Similarly, the sub-catchments with higher SR values (alpine sub-catchments) experience low flow events in early winter months in the year compared to the downstream sub-catchments facing low flows in late summer. Therefore, the correlations are negative. It should be noted that the correlation coefficient between SR and WP (i.e. -0.6) is higher than the correlation between SR and WMOD (i.e. -0.4) and no significant correlation is found between WP and WMOD (i.e. 0.1).

Regarding interrelations between RCM outputs, as expected for time series resulting from stochastic processes in RCMs, no significant correlations are found. An example for precipitation for climate scenario (CS1) is shown below table.

Table 1: Cross correlation coefficients between climate scenario 1 and 6 other climate scenarios for Neckar 1 sub-catchment.

Other CSs	**CS1**
CS2	0.013
CS3	0.018
CS4	0.018
CS5	-0.006
CS6	0.007
CS7	0.003

The authors appreciate the textual suggestions for the use of the words ``uncertainty`` and ``variability``. We will incorporate them in the revised version of the manuscript as.

`` From comparison of the uncertainty sources evaluated in this study, it is obvious that different GCMs/ RCMs have a larger influence on the timing of low flows than different emission scenarios. The influence of different GCMs/RCMs on SR is slightly larger than the influence of different emission scenarios on SR, whereas the influence of different GCMs/RCMs on WMOD is similar to the influence of different emission scenarios on WMOD. ``

Comment 3) The values of Q75s, Q75w and Q75 for each catchment should be presented in a table.

Reply from authors: The SR index is the ratio of Q75s and Q75w and already presented in Figure 3, SR sub-plot. Furthermore, we will add a map to Figure 3 showing Q75 values at the outlet of the 134 catchments.

Comment 4) Page 6818, lines 19-20: should be: ... (2010) using the following equation for precipitation:

Reply from authors: The authors appreciate the textual suggestions and will incorporate them in the revised version of the manuscript.

Comment 5) Page 6818, line 27: ... (Eq. 9) Page 6819, lines 1-2: ... outputs for temperature have been corrected by .... using the equation:

Reply from authors: The authors appreciate the textual suggestions and will incorporate them in the revised version of the manuscript.

Comment 6) Page 6819, line 9: By using Eq. (10) the mean ...

Reply from authors: The authors appreciate the textual suggestions and will incorporate them in the revised version of the manuscript.

Comment 7) Page 6821, line 5: Further, in Fig. 2 we present ...

Reply from authors: The authors appreciate the textual suggestions and will incorporate them in the revised version of the manuscript.

References

Nakićenović N, Swart R. 2000. Special Report on Emissions Scenarios. Cambridge University Press, 612 pp.: Cambridge, UK.