

Interactive comment on “The relevance of glacier melt in the water cycle of the Alps: an example from Austria” by G. R. Koboltschnig and W. Schöner

Anonymous Referee #2

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The subject of the study is for the water cycle in alpine environments of major importance. The authors provide a comprehensive study review, and try to calculate the contribution of glacier melt to runoff for August 2003 in a subset of austrian catchments.

Basically the scientific statement of this study is lacking. For this reason I recommend the following alternatives:

- 1) writing a Review-Paper regarding "The relevance of glacier melt in the water cycle of the Alps" or
 - 2) evaluation and analyses of the presented data, so that statistically significant con-
- C1862

clusions are possible

I fully agree with the comments of B. Schäfli ("... left with more questions, than answers...") and of Anonymous Referee 1. In order to not publish any repetitions, I will add a few additions below.

- Page 2899, lines 5-10: It is questionable, whether the same method is feasible to compare such different large catchments (cross-scaling).
- Page 2899, line 7: not only the glacier surface, but also the mass balance
- Page 2899, line 26: "... the decrease in precipitation ...". This statement is false. The amount of precipitation depends on the Ensemble-member and the season
- Page 2901, lines 19-21: formulation of "visible" is unclear -> to rephrase
- Page 2903, line 6: "... should show ..." is not a scientific statement
- Page 2903, line 12: in comparison to which period?
- Page 2903, lines 15-17: Basically, it is statistically problematic to neglect outliers. In any case the values of the analysed period must exactly match with the 10-years reference period.
- Page 2903, line 26: abbreviation "GIS" should be explained
- Page 2904, line 2: not "real-hydrologic condition", but "actual hydrologic condition"
- Page 2904, lines 21-23: It would be better to integrate fewer catchments, but catchments with longer time series; ten years are often too short for a reference period
- Page 2904, lines 26-27: the phrase "The reduction was close to the mean for areas with high glaciation but highly variable from region to region, ..." is a contradiction in itself - or I understand the phrase wrong
- Page 2905, line 2: "... should be better ..."; this formulation has no scientific relevance

- Page 2905, lines 20-26: On the one hand there is no correlation in figure 3 displaying the quotient $qA03$ vs. the glaciation and nevertheless, the catchment of Vernagtbach is added as a single good example; the scientific statement is missing
- Page 2905, Results: The results are too short and not really evaluated; it is interpreted only the table 1
- Page 2906, line 6: for larger glacier inventories -> World Glacier Monitoring Service WGMS
- Page 2906, lines 5-7: I don't understand the phrase
- Page 2906, line 12: The "... good correlation ..." apply only with the Vernagtbach catchment; and with the neglect of the outliers (statistically not feasible)
- Page 2906, lines 18-24: this section should be part of the results (chap 5)
- Page 2906, line 28 / Page 2907, line 1: "... assuming necessary ... misleading." To rephrase, because it is a contradictory statement

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