

Interactive comment on “The Rofental: a high Alpine research basin (1890 m – 3770 m a.s.l.) in the Ötztal Alps (Austria) with over 150 years of hydro-meteorological and glaciological observations” by Ulrich Strasser et al.

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Author comment on

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S. Pohl (Referee)

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Review of The Rofental: a high Alpine research basin (1890 m – 3770 m a.s.l.) in the Ötztal Alps (Austria) with over 150 years of hydrometeorological and glaciological observations

Thank You very much for Your valuable review. All Your suggestions contribute to the improvement of our work. In the preparation of a revised version of the manuscript we consider Your specific comments as follows:

The authors present a very thorough overview over the research data available for the Rofental catchment in Austria. The data sets described include meteorological data, runoff data, glacier data and snow and glacier observations made with terrestrial and airborne laser devices. Nearly all data sets are presented with their respective sources and availabilities which makes it easy for interested researchers to access them. Along with the data the paper presents multiple relevant studies that have already been conducted and published using the presented data sets. This overview will certainly help researchers across the cryospheric community who are looking for suitable datasets for a variety of applications. Overall this paper, in my opinion, presents a very nice contribution to the ESSD journal and should be helpful for a variety of interested research groups.

The language is adequate and the presentation clear and concise. I would therefore recommend publication after some (very) minor revisions (see specific comments). Specific comments:

P.2 line 4 This sentence is extremely long and awkward to read. Maybe split into two after “Alpine environment”.

Reviewer 1 has already noted this. The long sentence has been split into three.

p.3 line 18,19 It should be either “are” and “farms” or “is” and “farm”.

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Corrected: we decided for "is" . . . "farm"

Figure 2: Is there a chance of including elevation contour lines in this figure? Or alternatively could you provide a Table with the elevations of all stations shown? This information is scattered throughout the paper when discussing the individual stations, but I think it might be beneficial to bundle the information in a single spot.

We added contour lines to the map

p.5 line 20 You have not defined the acronym AWS. While it is a very common acronym you still might want to define it the first time you use it.

Done

p. 8 line 13 What do you mean by "measuring two-monthly in the summer"? Are these two months sums of precip? Please clarify.

We added "Readings of totals are undertaken all two months in summer and with a 4 month break in winter. These totals are then redistributed to monthly values using the recordings of the weighing rain gauge in Vent."

p 9. line 14 Here you write automatic weather stations. If you have defined it before you might want to use AWS here.

Done

p 10. Line 11: Which hut are you talking about?

We added the name of the hut, "Schöne Aussicht – Hütte"

p. 12: line 4: In the figure caption you mention a "glaciological method". In the text you mention using stakes, aerial photos, satellite observations and laser scans. I assume the glacier balances shown in Figure 4 are based on stake measurements but I would recommend clarifying this.

We added in the figure caption: ". . .after the glaciological method using stake readings

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and snow pit data.“

p. 14 Figure 5: What are the lines along with the correlation equations and R² factors? I assume these are trend lines but I would recommend mentioning this in the text and/or the caption and maybe even add a couple sentences of discussion on these, if you are showing them in the Figure.

We added in the figure caption: "In addition to the seasonal values (vertical bars) and the annual values (black line) the linear trend lines and the according R² correlation factors are displayed.“

p. 15 line 10: How was the glacier contribution to streamflow determined? Please include a short description of the method used.

We added "determined as the fraction of glacier ablation to recorded streamflow“

p. 17 line 16: Remove “such” at the beginning of the sentence.

Done

Thank You!

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