

Clim. Past Discuss., author comment AC2  
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## Reply on RC2

Yuri Brugnara et al.

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Author comment on "Pre-industrial temperature variability on the Swiss Plateau derived from the instrumental daily series of Bern and Zurich" by Yuri Brugnara et al., Clim. Past Discuss., <https://doi.org/10.5194/cp-2022-34-AC2>, 2022

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**Line8, it would be great to list the effected instrumental datasets, or at least a couple of the most used ones. Are HISTALP and EKF400 among those datasets? Again, it would be nice to provide a couple of field example as a demonstration of the significant implications.**

Unfortunately this is very hard to do, because it is very hard to figure out what is actually used in the various data sets and what the impact of each data source is. Therefore we can only speculate, knowing that HISTALP is very popular (for good reasons!). To better reflect this, we will change the words "biases affecting" to "biases that might affect".

**I think the describe in section 2 could be more compact, leaving out some of the personal information about the observer while focusing on information closely relevant to data availability and reliability. For example, what is the purpose of mentioning an observer lived in at least three different apartments (Line115)? Does it have an influence on the temperature measurements? If that is the case, it should be pointed out in the description.**

We tried to be as concise as possible, but given the large number of segments it is still a lot of information. We think that also the historical context and the motivation of the observers are important. However, we will try to remove some non-essential information if it can be found in the provided references. Where an observer lived is relevant as measurements were usually made at the observer's apartment.

**Line133-134, the two segments of temperature observations are not continuous, especially the first segment only covers three-year from December 1803 to November 1806 (with many gaps). So the subtitle "Fueter (1803-1833)" is kind unjustified and misunderstanding, to my view.**

We will correct the subsection's title.

**Line 354-360, please provide a brief rationale statement for the use of 90 vs. 45 vs. 30 minutes as the time error for the different types of observation.**

We will.

**Line453-454i¼□"We introduced a subjective quality ranking (from 1, best, to 4,**

**worst) based on our knowledge of the data and metadata (homogeneity, exposure, representativity, completeness, etc.).” Please provide more detail information about how the ranking has been done, maybe with an example, such as why and how were the three student’s observations (Table 1) given two different rankings. Also please describe how has the ranking (1-4) being applied in the reconstruction of temperature?**

We will provide an example that also helps understanding the ranking's role in the merging.

**The subtitle of section 4.4 is about “Climate Variability Since the mid-18th Century”, however, I do not see any mention of the results during the early period of 1760-1800. A paragraph discussion of this period would be valuable and also fulfill the subtitle.**

Good point - we will add a discussion of the 18th century data.

**Line 557-559 “Being based on the raw sub-daily measurements, our results are independent from previous work, making them particularly valuable for assessing the quality of widely used long European records, many of which were reduced to daily or monthly means over a century ago.” I am a little confused about what does the last phrase of the sentence mean. Is “which” mean the resolution of the “widely used long European records”? And that these records have daily or monthly resolutions before 20<sup>th</sup> century?**

We will rewrite the sentence. The point is that daily and monthly means were calculated by hand over a century ago and there were necessarily approximations that do not meet modern standards as well as lack of metadata.

**Figure 1. Does the size of the red circles indicate the number of stations in each region? Please provide a notation.**

No, the circles on Bern and Zurich have a larger size simply to highlight their position. We will mention it in the caption. In addition, we will redraw the map with topography.

**Some of the lines in Fig. 14-16 are difficult to distinguish from one another. Please consider revise the figures using more easily distinguished colors.**

We will.

Thank you and kind regards,

Yuri Brugnara