

The paper by Imfeld et al. presents several spring climatic and phenological indices for Switzerland with the aim to analyse their long-term changes since 1763 CE with particular attention to some selected warm, late frosts and cold springs. The paper has a potential to be published but the authors should consider my critical comments below.

Major comments

- 1) I understand that the paper concentrates on Switzerland, but I miss any broader Central European context, particularly in discussion of your results.
- 2) You are citing a lot of different places in Switzerland – it would be very useful for readers who are not so familiar with Swiss geography to see any map showing location of cited places or cantons.
- 3) Please consider to add some tables giving at least some characteristics (numbers) for the 30-years periods analysed which would be helpful to better follow your detail descriptions in Chapters 4.1 and 4.2.
- 4) Please check very carefully references – there is a lot of different errors in typos or in missing information needed for full citations.
- 5) Please consider the information value of Figures 1 and B1 in which you have too many very small maps.

Minor comments

Line 5: Please delete “for example” here.

Line 18: What is it Bise? It is not explained here or in any other parts of the manuscript, where this term is used.

Line 20: ... can destroy **future** harvest ...

Line 20: How spring snowfall may put trees in risk?

Line 27: In connection with late spring frost it would be useful to involve also term “false spring”.

Line 28: Please add any other citations of other papers, e.g., 10.1007/s00704-023-04671-2.

Lines 29-30: Strange order of citations. Please check and present it correctly everywhere in the manuscript, where you have more than one citation (e.g., line 315).

Line 35: “dataset” – please use it uniformly as dataset (you have it also as “data set” – e.g. lines 36, 53)

Line 37: longer-term climate? Should be not long-term spring climate?

Line 58: Not clear what you mean by “wet days” here – you define them later.

Line 59: Which independent observations?

Table 1: You define snowfall days by daily mean temperature and by precipitation total, not looking on kind of precipitation? How you can be sure, that it was really snow?

Table 1: Frost index – after which phenological phase?

Lines 90-91: Is correct the term “climatological period” – it should be rather as “30-years period used as standard in climatology” or anything similar.

Line 92: I have serious doubts to speak about 1871–1900 as “pre-industrial” period. What be not better only “reference period”?

Line 106: Not clear what you mean under “quality class of at least 3”.

Line 108: Where or were?

Line 115: Please use 18,000.

Figure 2: It would be useful to complement fluctuations in your characteristics by linear trends with their statistical significance.

Line 197: 10.1 °C instead of 10.09 °C.

Line 215: Fig. 4d is not there, only 4a and 4b.

Line 247: Please use Table instead of Tab.

Line 250: Please consider replacing “from March to May” by “spring”, i.e. here: “Their mean spring temperature in the Swiss plateau reached ...”

Figure 9 – caption: 500 hPa geopotential ...

Line 310: positive **500 hPa** geopotential

Lines 371–372: Better formulation of the last sentence?

Appendix A: Variables R_g and n are not explained here.

Figure A1 – caption: c) and d) are the same as a) and b)

Table 2: Ct. should be explained above.

Figure C1 – caption: “absolute values (contours)” – I do not see any values there, only isolines.

Line 425: The paper was not yet published, that you are citing Climate of the Past Discussion?

Line 465: In review?