

Clim. Past Discuss., community comment CC2  
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## Comment on cp-2021-110

Martin Grosjean

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Community comment on "Glacier response to Holocene warmth inferred from in situ  $^{10}\text{Be}$  and  $^{14}\text{C}$  bedrock analyses in Steingletscher's forefield (central Swiss Alps)" by Irene Schimmelpfennig et al., Clim. Past Discuss., <https://doi.org/10.5194/cp-2021-110-CC2>, 2021

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I congratulate the authors for this exciting and comprehensive publication. I enjoyed reading it.

However, before final publication I strongly recommend revising the manuscript in the following points, mainly related to the Discussion and Conclusions:

- Please add in Fig. 6 b the global temperature for the reference period 1991 – 2020 which is significantly above 1961-1990; it would be helpful to show in Fig 6 g the extent of Mer de Glace and Great Aletsch in 2019/2020 (e.g. <https://www.glamos.ch/en/factsheet#/B36-26> or WGMS data). This is relevant to specify what 'today' means; 'today' should refer to 1991-2020 (recommendation WMO).
- Seconding the Comment by Heinz Wanner: please add in the Discussion (Section 5.3) a short paragraph about the orbital forcing during the Holocene (particularly for summer) and how this influences summer TT and glacier lengths (based on the argument that glaciers are sensitive to summer temperature).
- I would also like to see a crystal clear statement (maybe in the Conclusions) that the main findings of this paper (small glaciers in the Early and Mid Holocene) is fully in line with the theory and current comprehensive understanding of Holocene climate change (including glacier variations) in the mid latitudes of the NH, and that recent glacier retreats (in the Alps and worldwide) and warming temperatures are undoubtedly attributable to anthropogenic forcing (e.g., Roe et al. 2021 The Cryosphere, 15, 1889–1905 and references therein; IPCC AR4, 5 and 6). The causes for (Early) Holocene glacier retreats were very different from those of today.

In light of recent glacier retreats under anthropogenic climate forcing (in the Alps, but also globally), it is most relevant to place Holocene glacier variations (this paper) and their causes in the appropriate, unambiguous and scientifically sound context.

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