

Clim. Past Discuss., referee comment RC1
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Comment on cp-2021-148

Anonymous Referee #1

Referee comment on "Climatic, weather, and socio-economic conditions corresponding to the mid-17th-century eruption cluster" by Markus Stoffel et al., Clim. Past Discuss., <https://doi.org/10.5194/cp-2021-148-RC1>, 2022

Major comments:

The article by Stoffel et al. skilfully merges volcanology, palaeoclimatology and history in a convincing way. I can fully endorse its publication after some, relative minor, revisions. This multi-disciplinary team has truly put together a state-the-art-art work by assessing the (potential) impacts, and their difference in space and time, of a number of mid-17th century volcanic eruptions, some of which have attracted relatively little interest in earlier scholarship. A major strength is the inclusion of historical data from both Europe, China, and Japan. Obviously, only parts of Europe can be adequately covered. This spatial limitation could be more explicitly stated in the article. Furthermore, it would be an advantage if the treatment of China – and especially of Japan – could be more extensive. It would place Europe and Eastern Asia on a more equal footing in the article.

In the revision, the authors could check the figures and see to it that they all have the same style and fonts et cetera. For example, it appears to me as the colour scale of Figure 5 and Figure 6 differs despite that it would be better to have the same scale. Moreover, the quality of some of the figures – at least now in the pre-print – appears to have a low quality/resolution. The manuscript also needs proof-reading – this includes the reference list too – and there are inconsistencies in the list of affiliations as well (for example, the affiliation to Trinity Collage Dublin is given in two different ways).

Minor comments:

Line 25: I am not sure if actually the term "deteriorating" is adequate here. The climate was at least as cold around 1600.

Line 35: What is meant with "severe" here as it cannot be a synonym to "cold" stated separately?

Line 39: Is it possible to be more precise in years?

Line 49. Also cite here: Solomina, O. N., Bradley, R. S., Jomelli, V., Geirsdottir, A., Kaufman, D. S., Koch, J., McKay, N. P., Masiokas, M., Miller, G., Nesje, A., Nicolussi, K., Owen, L. A., Putnam, A. E., Wanner, H., Wiles, G., and Yang, B.: Glacier fluctuations during the past 2000 years, *Quaternary Sci. Rev.*, 149, 61–90, <https://doi.org/10.1016/j.quascirev.2016.04.008>, 2016

Lines 52–52: This cooling presumably refers to the 17th century w.r.t. 1961–1990? Not the entire multi-centennial Little Ice Age was so cold. You could alternatively cite Christiansen and Ljungqvist (2017) that the 17th century likely was 0.5–1°C colder than this reference interval. Reference: Christiansen, B., and Ljungqvist, F.C., "Challenges and perspectives for large-scale temperature reconstructions of the past two millennia"., *Reviews of Geophysics*, 55 (2017): 40–96. <https://doi.org/10.1002/2016RG000521>

Line 61: I presume that you with the "Little Ice Age" here mean the late 17th century only? It should be rephrased.

Line 66: "Thirty Years War" should be "Thirty Years' War".

Line 68: A better reference than Parker (2013) here is Parker (2006): Parker, G., 2006. *The Thirty Years' War*. Routledge, London.

Lines 71–72: Is "Portugal rebels" right here?

Line 118–120: This very short paragraph could be merged with another paragraph.

Line 249: "Jamtland" should be "Jämtland".

Line 271: Unclear what eruption "rank 4" refers to here.

Line 315: Consider to rephrase this slightly. Catholic France fought on the "Protestant" side.

Line 348: As grain price data are available for Paris, maybe you could quantify the price increase?

Line 362: "arrival" is better here than "rise". And "bulk" better than "heavy".

Line 395: Maybe a citation to some work by Astrid E. J. Ogilvie is better here than to Parker (2013)?

Line 508: Other estimates of the number of deaths in the Thirty Years' War are even higher. See, e.g.: Wilson, Peter H. (2009). *Europe's Tragedy: A History of the Thirty Years War*. Allen Lane.