Dear Reviewers,

First of all, the authors want to thank the reviewers all the hard work and time they have devoted to review the manuscript. We appreciated all the comments, realizing that they serve to improve the quality and understanding of our work, and hoping to have properly answered all their suggestions.

Changes in the manuscript have been highlighted in red.

Specific changes RC1

The article by deCastro et al. is of great interest but requires revisions. Many key relevant works in climate history, that the authors could cite in the introduction, are missing. Instead they cite outdated popular science book about the Little Ice Age by Fagan (2001). I have at the end of this review listed some additional potential references to cite for the Introduction and Discussion. Also key literature about erosive precipitation in Italy is missing and could be cited. The entire Introduction section could be more concise and better relate to state-of-the-art climate history research for Europe.

The reviewer is right and most of the references proposed by the reviewer were introduced in the revised version of the manuscript.

The English language requires additional polishing. In particular, the title contains a severe error. The Article concerns the 1760s – thus the 18th century – and NOT the 17th century (the 1600s) as stated in the title.

The English language was polished and the title was corrected.

It would be better to have the quotations of sources, in English, in the main text and place the original after within parentheses (and avoid footnotes altogether).

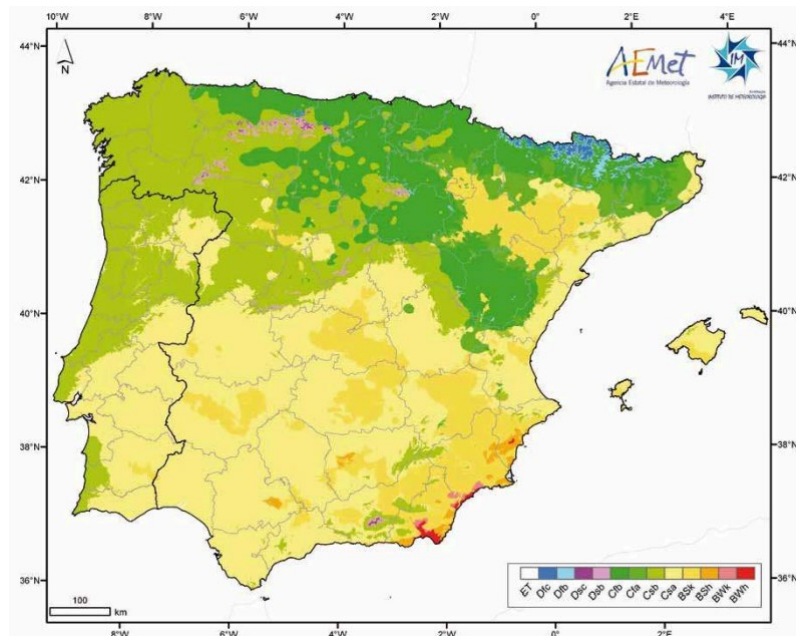
Done

Much of the links to the data sources on pp. 8–9 code instead be include be listed in a Data Availability Statement at the end of the article. It is enough in the actual Method section to describe the data sources but how to find them can instead be placed in a Data Availability Statement.

The authors maintain links to the data sources in the Methods section because, to the best of their knowledge, the journal's Data Availability section is intended for data generated by the authors during the course of the research, rather than for indicating the sources from which the data used in the paper were downloaded.

Minor comments:

Line 80: Formulation "most of the south and Mediterranean" is unclear.

This sentence was rewritten to reflect what can be observed in the Climatic Atlas of the Iberian Peninsula (AEMET-IM Iberian Climate Atlas. Agencia Estatal de Meteorología, Instituto de Meteorologia de Portugal, 2011. https://www.aemet.es/documentos/es/conocermas/recursos_en_linea/publicaciones_y_estudios/publicaciones/Atlas-climatologico/Atlas.pdf).

Line 209: Better to write 18th century and 21st century.
Done
Table 2: Please state period.
Done
Table 3: Please state sources and location.
Done
General: Avoid abbreviations such as "IP" for the Iberian Peninsula. It makes the text harder to read.
Done
Line 559: Avoid words like "unprecedented". The authors themselves mention that 1740 might had worse famine mortality.
Done

Suggestion of additional references to cite:

Collet, D. and Schuh, M., eds.: Famines During the 'Little Ice Age' (1300–1800): Socionatural Entanglements in Premodern Societies, Springer, Berlin/Heidelberg, https://doi.org/10.1007/978-3-319-54337-6, 2018.

Diodato, N., Ljungqvist, F.C. & Bellocchi, G., A millennium-long reconstruction of damaging hydrological events across Italy. Scientific Reports, 9 (2019): 9963. https://doi.org/10.1038/s41598-019-46207-7 2

Diodato, N., Ljungqvist, F.C. & Bellocchi, G. A millennium-long climate history of erosive storms across the Tiber River Basin, Italy, from 725 to 2019 CE. Scientific Reports, 11 (2021): 20518.

Diodato, N., Ljungqvist, F.C. & Bellocchi, G. Outcome of environmental change from historical sediment discharge in a Mediterranean fluvial basin, 1500–2019 CE. Environmental Research Communications, 3 (2021): 071002.

Diodato, N., Ljungqvist, F.C. & Bellocchi, G. Climate patterns in the world's longest history of diluvial storm-erosivity: the Arno River Basin, Italy, 1000–2019 CE. Frontiers in Earth Science, 9 (2021): 637973.

Diodato, N., Ljungqvist, F.C. & Bellocchi, G. Fingerprint of climate change in precipitation aggressiveness across the central Mediterranean area. Scientific Reports, 10 (2020): 22062.

Galloway, P. R.: Secular changes in the short-term preventive, positive, and temperature checks to population growth in Europe, 1460 to 1909, Clim. Change, 26, 3–63, https://doi.org/10.1007/BF01094008, 1994.

Ljungqvist, F. C., Seim, A., and Huhtamaa, H.: Climate and society in European history, Wiley Interdisciplin. Rev.: Clim. Change, 12, e691, https://doi.org/10.1002/wcc.691, 2020.

Ljungqvist, F. C., Seim, A., and Collet, D.: Famines in medieval and early modern Europe – connecting climate and society, Wiley Interdisciplin. Rev.: Clim. Change, 15, e859, https://doi.org/doi.org/10.1002/wcc.859, 2023.

Ljungqvist, F. C., Christiansen, B., Esper, J., Huhtamaa, H., Leijonhufvud, L., Pfister, C., Seim, A., Skoglund, M. K., and Thejll, P.: Climatic signatures in early modern European grain harvest yields, Clim. Past, 19, 2463–2491, https://doi.org/10.5194/cp-19-2463-2023, 2023b.

Pfister, C. and Wanner, H.: Climate and Society in Europe: The Last Thousand Years, Bern, Switzerland: Haupt Verlag, 2021. ISBN: 978-3-258-08234-9. Ed. A. Matzarakis

Slavin, P.: Climate and famines: A historical reassessment, Wiley Interdisciplin. Rev.: Clim. Change, 7, 433–447, https://doi.org/10.1002/wcc.395, 2016.

Wanner, H., Pfister, C., and Neukom, R.: The variable European Little Ice Age, Quaternary Sci. Rev., 287, 107 531, https://doi.org/10.1016/j.quascirev.2022.107531, 2022.

White, S., Brooke, J., and Pfister, C.: Climate, Weather, agriculture, and food, in: The Palgrave Handbook of Climate History, edited by White, S., Pfister, C., and Mauelshagen, F., pp. 331–353, Springer, Berlin/Heidelberg, 2018.

Specific changes RC2

This is a very interesting paper on a specific pluvial event and its consequences on society. I appreciate that it is not only climatologically state-of-the-art, but also sketches all the relevant historical developments that are necessary to interpret this event, without going too far into climate determinism, like so many other studies. Nevertheless, I have some comments, which I would ask the authors to consider in their revised manuscript.

General:

1770-1772 was a period of crisis in central Europe (see work By Dominik Collet). Although this might be arguably unrelated in a climatological context, and concerned a different region, it might nevertheless be relevant historically to extend the present case.

The work of Dominik Collet has been considered in the revised version of the manuscript

Daily scale: The authors speak about "torrential" rain, which cannot be assessed form monthly data.

The reviewer is correct, and the word 'torrential' (a misuse of language) has been replaced with 'heavy.

In general, I am wondering what could be done with daily data. These should be available from London and Paris (see Richard Cornes work), from the English Channel (wind from ships), and other Western European stations. Paris precipitation is another interesting record, but is not included in the study. It is a bit peripheral, but could nevertheless be interesting.

Richard Cornes's research primarily focuses on sea level pressure data and, to a lesser extent, temperature. Finding no research on daily precipitation, the authors reached out to Richard Cormes to enquire about any sources of daily rainfall data for Paris or London. His response was, "*In the sources that I used for the pressure series, daily rainfall values were not recorded but there is "Weather". See the following for Paris (Journal de Medecine) and London (Gentleman's Magazine)* https://archive.org/details/s3id13654820/page/87/mode/1up, https://archive.org/details/s2492id1330011/page/77/mode/1up. *There may be other sources that do have daily rainfall but it would be quite an effort to find them and then digitize etc.*

At least in three instances in the manuscript, the authors speak about 1678-1679. Perhaps this was a "find-replace" error. Or was it the 17th century and not the 18th century after all? I am confused.

The reviewer is correct; it was a 'find-and-replace' error. These types of errors have been corrected throughout the revised version of the manuscript.

The discussion is really nice and interesting, but at the same time the discussion should not present new results, which the authors do.

The authors have ensured that all new findings from the research are presented in the Discussion section. Data provided by various organizations (Tables 2 and 3) were incorporated to support, clarify, and enhance the interpretation of the results and to strengthen the arguments discussed.

Minor:

Title: "17th century" -> "18th century"

Done

Title: "a meteorological perspective" -> "a climatological perspective"

Done

L. 14: "climate behaviour" -> "climate variability"

Done

L. 154: Le Roy Ladurie

Done

L. 210: Valler et al. 2020 -> 2022

Done

L. 224: What did Murphy et al. find?

This was better explained in the revised version of the manuscript (lines 227- 232).

L. 342: Why 1944? ERA5 starts in 1940.

The mean and the 95th percentile of the rainiest days, determined from data at the Santiago de Compostela rain gauge station (Table 1), were used to generate the SLP and GPH composites maps from ERA5 data (Fig. 9). Despite ERA5 data are available starting from 1940, the sub-period 1944- 2023 was selected to match the time frame of the Santiago de Compostela rain gauge station.

L. 423: What is meant with "root crops"? Potatoes? Then write potatoes. Or were other root crops important

Hoyle (2017) uses the term *root crops* to refer to a variety of crops beyond just potatoes, such as carrots, beets, turnips, radishes… Therefore, we prefer to keep the term *root crops*.

We look forward to hearing from you soon.

Yours sincerely and on behalf of the co-authors,

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