

Clim. Past Discuss., referee comment RC2  
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## **Good science, but needs a total re-write.**

Philip Brohan (Referee)

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Referee comment on "Statistical reconstruction of daily temperature and sea level pressure in Europe for the severe winter 1788/89" by Duncan Pappert et al., Clim. Past Discuss., <https://doi.org/10.5194/cp-2022-10-RC2>, 2022

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This document is not a research paper.

It is a description: of a diverse and valuable program of research relating to the European weather of 1788/9 - some basic data work, some reconstruction methodology work, some creation of new weather reconstructions, and some discussion of the specifics of the event. As a research *program* this is admirable, and I am sure that there is material here that is well worth publishing, but as a research *paper* it's confused - a paper really needs to tell its readers a single new thing - to present an important result, or method, or dataset that is new to science. This paper presents lots of things, but I had great difficulty working out what was new, and what was important. The effect of this is that it's difficult to read, and it's hard to work out what value it is offering. So, despite the potential value of the work done, I don't think we can publish this because nobody will read it - reading it is much too much work.

This could be a paper on the winter of 1788/9, presenting new reconstructions of the weather, with their validation and where they were better than the previous state of the art. And maybe appendix 1 on collected station observations for the period and appendix 2 on the reconstruction method.

It could be a paper on a new weather-field reconstruction method combining analogues and EnKF, with a thorough validation using subsampled modern reconstructions, then a case-study on 1788/9. (Please be careful of terminology when describing the method, I'm still not quite sure if 'post-processing' and EnKF mean the same thing, or whether either of them is included in ARM.)

It could be a paper on a basic data collection for 1788/9, with an example reconstruction to show its value.

I would like the authors to rewrite their paper. Don't tell me what you did; decide what you discovered that I need to know, and write a paper that communicates that. (They might end up with more than one paper). I realise they won't be happy with this recommendation, but something drastic has to be done - I don't think the current version will work at all - and there is good science here, I'd like to see it successfully published.