

## ***Interactive comment on “Human response to severe drought in Early Modern Catalonia. The case of Barcelona, Western Mediterranean (1620–1650)” by Santiago Gorostiza et al.***

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### GENERAL COMMENTS

The topic falls within the scope of the journal. It is an interesting paper about institutional responses to drought in the early modern period in a region (Catalonia, NE Spain) with still scarce research on the human history of climate (i.e., past adaptations, vulnerabilities, conflicts). Moreover, in line with previous research in the field of historical climatology re-assessing traditional documentary sources or presenting innovative ones (e.g., Adamson 2015, Veale et al. 2017), this research shows the potential of urban water supply manuals as a (rare, but unique) source to be taken into account to

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critically interpret the nature and range of institutional responses to droughts and water scarcity. Indeed, the authors have made their analysis by conducting the first complete transcription of the main primary source presented and interpreted (the Book of Fountains, 1650). Finally, I particularly appreciate the combination of a robust drought reconstruction with a complex environmental history narrative addressing questions of power and knowledge.

The manuscript is well-written and easy to read. The structure of the article is clear, although it could be further improved by reducing some redundancies (see below). In my opinion, the manuscript should be published in *Climate of the Past*, after addressing some minor issues mentioned and developed in the next section.

### SPECIFIC COMMENTS

- Why the article approaches (and is titled as) “human responses” and not directly institutional responses? To my view human responses would also include strategies of citizens/households, such as water thefts or changing water consumption patterns. However, the manuscript mainly addresses the actions of the Barcelona City Council (Consell de Cent) and not the responses of other stakeholders.

- Why do you interpret the writing of the book as an appropriation of knowledge and not making (private or family) knowledge public? Also regarding this topic, you could further develop your argument on knowledge storage and transmission as adaptation, with references such as Leonti (2011).

- While the manuscript explains in great detail the array of responses to drought, sheds light on the complexity of drought and the interlinkages with other problems (e.g., water scarcity, food supply or politics), and effectively re-interprets the Book of fountains as an effort to codify and appropriate urban water knowledge in a certain climatic context; it remains under developed how your contribution relates to previous literature. Below, I point specific sections where this review would be useful to strengthen your article.

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### Introduction (Section 1):

1. In the introduction, you present the state of the art of historical climatology research in Catalonia, but a general view of the field and your specific contribution is lacking. It would be useful to provide a (short) review of the last research on human responses to climate anomalies (and particularly past droughts), the main gaps and debates, and your contribution. This could also be added in the abstract reducing contextual information and summarizing the novelties of this research.
2. You mention that you only found another book that shares some of the features with the Barcelona Book of Fountains (lines 98-101). Which are the similarities and differences between them? If relevant, please include a short explanation on that.
3. To my view, there are some redundancies explaining the objectives and structure of article (e.g., lines 78-89, lines 125-148, lines 220-226). I would suggest simplifying them.
4. Some parts of the text are too detailed and local that the reader may get lost. I would suggest reviewing the introduction, reduce details or too specific terms (that will be later addressed in detail in the next sections) and make the section more fluent and easy to understand.

### Climatic context (Section 2):

5. I wonder whether this section is part of your results or just to provide a context. If you are presenting the climate reconstruction as a result, I think the methodology to characterize the climate should be better explained (either in footnotes or in a methods section), addressing questions such as how the drought frequency weighted index was constructed or what the different levels of "pro pluvia" rogations mean.
6. While in Fig. 1 and Fig. 4 the data used is clear, the data sources in Fig. 2 and Fig. 3 appear to me unclear. Please, could you clarify it?

### Struggling for water supply (Section 3):

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7. The tradition to kept and transmit knowledge from father-to-son was probably recurrent not only within water officers' families (lines 457-462). Could you explain more generally this system of knowledge transmission adding, for instance, a couple of references on that?

Codifying knowledge about water supply (Section 4):

8. Could you please develop a bit more the introduction to section 4.1 (lines 429-431)?

9. The article nicely explains how the water officer "inscribes water urban geography into the pages of the Book of Fountains" (lines 519-527). It would be useful to illustrate this finding with a figure showing these symbols. For instance, an image of the manual's margins or a picture of the crosses in the stone walls.

10. Would it be possible to shortly state whether the book was in practice used by next generations of water officers or the city council itself?

Conclusion (Section 5):

11. As in the introduction, you should further develop the contribution of your case study to the international debates (e.g., what specific novelties it provides to the scientific literature on past historical adaptations to climate anomalies?) (lines 687-690).

## TECHNICAL CORRECTIONS

See the comments in the attached document.

Please also note the supplement to this comment:

<https://www.clim-past-discuss.net/cp-2020-33/cp-2020-33-RC2-supplement.pdf>

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Interactive comment on Clim. Past Discuss., <https://doi.org/10.5194/cp-2020-33>, 2020.

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