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## ***Interactive comment on “Early Portuguese meteorological records (18th century)” by M. J. Alcoforado et al.***

**Anonymous Referee #1**

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The manuscript by Alcoforado et al. is well written in a way that makes it easily accessible for climatologists and well as for historians. The short 18th century Portuguese meteorological records presented in the work represent a substantial scientific contribution. Even though the records are too short to be really useful for the calibration of proxy data, they can nevertheless be useful in large-scale reconstructions similar to the field temperature reconstructions of Luterbacher et al. (2004) and Xoplaki et al. (2005). It is my recommendation that this manuscript is published in a slightly revised version as soon as feasible.

I would also like to take the opportunity to give the authors an acknowledgement for making their data freely available. This is important, given that it, unfortunately, still do not exist any comprehensive public data repository for early (pre-1850) meteorologi-

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cal observations, as it does for climate proxy records with the World Data Center for Paleoclimatology.

Although Alcoforado et al. clearly states (p. 24) that it is difficult, for a number of reasons, to directly compare the early Portuguese meteorological observations with modern values, I would like to see an attempt to do this at least for the temperature measurements. Temperature values should both be given (as now) as absolute values but also as anomalies relative to the 1961–1990 reference period.

Minor points:

Page 2, line 1: It is stated that proxies, documentary evidence and instrumental data are the “main sources” for reconstructing past climates. I would say they are our only sources. (The only other sources of information to past climate variability is model simulation and simulations are not reconstructions.)

Page 3, lines 20–23: I would like to see some references to these statements concerning the history of meteorology, preferably some standard works in English, German or French.

Page 3, line 29: Please, rephrase this sentence. It is hardly correct to say that the Scandinavian countries were more “developed” in the second half of the 18th century than Portugal, although France and Great Britain certainly were.

Page 4, line 1: Bergström is incorrectly written Bergstrom (with an ordinary “o” instead of “ö”). (Bergström is correctly written in the reference list.)

Page 5: lines 9–14: It would be useful to have some more discussions also about the early continuous (or near continuous) instrumental records here. Maybe a map of early continuous and non-continuous European temperature records from the 18th century could be included in the article. Now, the focus is mostly on the non-continuous shorts instrumental records.

Page 9, lines 1–2: The phrase “funnel 15 inches in diameter” is by mistake written

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twice.

Page 9, line 21: Why is the Heberden data compared to the period 1980–1994 and not the commonly used 1961–1990 reference period? Please, explain.

Page 16, line 19: The word “rainfall” is mistakenly written “rainfal”.

Page 20, lines 2–4: It would be very informative if the authors wrote what the average 1961–1990 monthly temperatures in Murdock, Madeira, are in order to place the values mentioned from around AD 1800 in a clearer context.

Table 2: Please, state what months are included in “Summer”. I suppose “Summer” – in accordance to common meteorological convention – stands for June, July, and August?

References:

Luterbacher, J., Dietrich, D., Xoplaki, E., Grosjean, M., and Wanner, H.: European seasonal and annual temperature variability, trends, and extremes since 1500, *Science*, 303, 1499–1503, 2004.

Xoplaki, E., Luterbacher, J., Paeth, H., Dietrich, D., Steiner, N., Grosjean, M., and Wanner, H.: European spring and autumn temperature variability and change of extremes over the last half millennium, *Geophys. Res. Lett.*, 32, L15713, doi:10.1029/2005GL023424, 2005.

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