

Interactive comment on “Maximum growing season temperature in Western Europe: multi proxy reconstructions in Fontainebleau from 1596 to 2000” by N. Etien et al.

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It is an interesting approach to combine different proxies and fit to the max temperature and get a new temperature reconstruction back to the late 16th century. I am not an official reviewer, I did not get into the details as much has been addressed already by the anonymous review. However, I hope that the following comments are of use and help clarifying some parts of the manuscript. I am also not a specialist in dendro analysis, so I just picked up a couple of thoughts which in my opinion are crucial and need to be addressed in a revised version. There are a couple of small points and 'major ones' that relate to the uncertainties, the comparison between new grape harvest data

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from Switzerland and other regional temperature reconstructions. Finally, I fully agree with the anonymous reviewer that the article needs to be shortened, the overall structure and English style obscuring its readability and I also support the last para of the anonymous review.

Page 1065, 2nd para: This para is rather unspecific and also the chosen references are mixed, some referring to annual NH recons, others European seasonal ones. Why not mentioning just those which are potentially of importance for your larger area, ie. those with a European or sub continental context? (Briffa, 1988; Luterbacher et al. 2004, 2007; Chuine et al. 2004; Guiot et al. 2005, Xoplaki et al. 2005; Meier et al. 2007, among others)

What are 'ancient instrumental data'? early instrumental data? Also on page 1088 Change historical records, also at other places to documentary evidence (see Brazdil et al. 2005 for a review)

However, many regions are... I am not sure about this statement. The climate of a region can sometimes be reconstructed accurately with teleconnection information and not always local information is needed. So what you possibly mean is that in some reconstruction only scarce information is included from France.

Same page, last para, line 22. Apart from the Guiot et al. 2005 reference there are others that are of importance in this context as well and should be cited. My suggests would be: Buentgen et al. 2005; 2006; Frank and Esper, 2005

Page 1066: Line 14 and also page 1077, line 16, better mean air temperature or mean 2m temperature

Line 24, I am not a tree ring specialist but 15 living trees seems to be too few to do a robust statistical analysis?

There is a new April-August temperature reconstruction for Switzerland published by Meier et al. (2007). In my opinion, it would be nice to do a comparison between

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this new grape harvest record from Switzerland covering the last centuries. See more information on that issue below.

Page 1067, line 17. I do not understand what you mean with -without any standardization-

Line 23. I think the argument that Guiot and our reconstructions can be improved in this context is not correct. In the reconstruction of Luterbacher et al. (2004, 2007) and Xoplaki et al. (2005) we are doing monthly to seasonal estimates. Also Guiot et al. provide summer reconstructions, therefore an April to September proxy will not help us to improve the reconstruction skill. So I would suggest to remove this sentence or the references.

Page 1077: also figure 2c ff. From what I can see and interpret, you do not present missing values in the Burgundy grape harvest dates. Looking at the Chuine et al. 2004 and Le Roy Ladurie et al. 2006 data series (also at the NOAA paleo homepage), there are a couple of missing values in the whole series. So I am wondering whether you filled those gaps or if you set them to the long term mean? Please add those important information.

As mentioned above, here a comparison with the Swiss grape harvest dates (Meier et al. 2007) should be performed to have an indication about the connection between the two areas both in the instrumental period, but also for the period based on the same type of proxy only (pre instrumental period). Both an overall correlation but also a moving decadal correlation plot would be helpful to see whether the relationship is stable over time or not. A discussion on this issue would help. Maybe you could also add the uncertainties from both reconstructions.

You report on a negative correlation of 0.7 between Burgundy grape harvest and max temp. So you can explain around 50% of the variability. I was wondering whether this uncertainty is also included in your final reconstruction? Related to the point of uncertainties, I am not sure if I understood everything clearly enough. From your abstract

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you state that those uncertainties are of the order of half a degree. I dare if you really took into account all the uncertainties within the whole reconstruction procedure. For instance the uncertainties from documentary proxy evidence are not quantifiable, also there are other uncertainties in the tree rings which I did not find here but that have been recently addressed by Esper et al. (2007). In Meier et al. (2007) we address other sources of potential uncertainties that cannot easily be quantified. A discussion on those issues are needed. Therefore, I really advice you to quantify all possible uncertainties (including uncertainties in the instrumental data as well as based on the statistical calibration, i.e. unresolved variance), report on them and also discuss other uncertainties not quantifiable related to all the proxies

Page 1086, Line 10, please also cite here Xoplaki et al. 2005 and Luterbacher et al. 2007

Line 12: Yes, our reconstruction includes information from France, the Morin temperature data from Paris during the Maunder Minimum (in Luterbacher et al. 2004, 2007 and Xoplaki et al. 2005) Please note, there is a GRL paper by Slonosky (2002) that report on the monthly precipitation series of Paris going back to the 17th century. A comparison with those data would also be of interest.

Page 1086 ff: I found those pages dealing with the correlation analysis with NH or European TT reconstructions quite difficult to follow. It is quite critical to compare local with large scale averaged European temperature or even NH estimates. I was a bit surprised about the comparison between yours and the Luterbacher et al. (2004) temperature reconstructions. A proper comparison would be to choose a couple of gridpoints from Luterbacher et al. (2004, 2007) and Xoplaki et al. (2005) around your area rather than the European mean. The comparison with the European mean does not make much physically sense. As we have monthly estimates from 1659 to 2002 to average those gridpoints over the April-September period rather than only the summer mean. As the data are available both in the monthly resolution and also for the area of interest, I do also not understand that you compare it with the JJA European mean

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which no surprise does not return high values. Chuine et al. (2004) did this in a similar analysis and found much higher correlations. Therefore I expect similar results with your new data.

References used in this review that are not used in the revised version.

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