Clim. Past Discuss.,
doi:10.5194/cp-2015-195-AC1, 2016

Climate of the Past Discussions
Open Access
EGU

Interactive comment on "Spring temperature variability over Turkey since 1800 CE reconstructed from a broad network of tree-ring data" *by* Nesibe Köse et al.

Nesibe Köse et al.

nesibe@istanbul.edu.tr

Received and published: 17 May 2016

Thank you for your time and comments. We would like to thank you for your time and comments. Here we will comment on, one-by one, the referee comments/suggestions. Below each comment is our response in regular weight blue font.

Sincerely, Nesibe Köse

General Comments:

We could not use only the chronologies that have significant relationship to temperature, because at the same time they have significant precipitation signal (except ART chronology, Figure 2). On the other hand, we would like to show that it is possible to

Printer-friendly version

Discussion paper

make a climate reconstruction from a tree-ring network, even if this climate variable is not the most important limiting factor on radial growth. In our case, May to August precipitation was the most important factor, and the second one was March-April TMP for almost all the chronologies. Classical approach in Dendroclimatology, is to use the PC 1 and/or high order PCs reconstruct precipitation. But here, we would like show that PC 1 could be a signal for precipitation but a noise for temperature. On the other hand the other PC's, which explain less variance, could be noise for precipitation and but a signal for temperature.

Specific Comments: 1. Thank you for your attention we will correct it in the manuscript.

2. We cited the investigators produced the chronologies.

3. We will replace the sentence by: "Third, the final reconstruction is based on bootstrap regression (Till and Guiot, 1990), a method designed to calculate appropriate confidence intervals for reconstructed values and explained variance even in cases of short time-series."

4. We will replace by ". . . but bootstrap has the advantage to produce confidence intervals for such statistics without theoretical probability distribution and finally we accept the RE and CE for which the lower confidence margin at 95% are positive. This is more constraining than just accepting all positive RE and CE."

5. We added information in the text under the titles "Data and Method", "Temperature reconstruction" explaining which method we used stepwise regression. We combined forward selection with backward elimination, checking for entry, then removal, until no more variables can be added or removed. Each procedure requires only that we set significance levels (or critical values) for entry and/or removal. We used $p \leq 0.05$ as entrance tolerance and $p \leq 0.1$ as exit tolerance. Actually, for almost all PCs it was $p \leq 0.01$ in entire regression. The final model obtained when the regression reaches a local minimum of RMSE. We also calculated Mallows Cp values. See the relation Cp and p (the number of parameters in the model, including the intercept) in (Fig.1).

We did not used a split-sample procedure to verify the model stability. We used bootstrap method. Therefore we run SR for the whole period. Bootstrap is only applied to the selected set of predictors by stepwise regression. Then it is not concerned by the bootstrap. We did not calculated calulated RE, CE at each step of the stepwise regression.

6. We added a column to Table 3, to show the chronologies represented by higher magnitudes of the eigenvectors.

7. We tried to say with this sentence that no temperature reconstruction has been made, which mean that it is difficult to do that.

8. We did suggested changes in the figures.

Please also note the supplement to this comment:
http://www.clim-past-discuss.net/cp-2015-195/cp-2015-195-AC1-supplement.pdf

Interactive comment on Clim. Past Discuss., doi:10.5194/cp-2015-195, 2016.

Printer-friendly version

Discussion paper

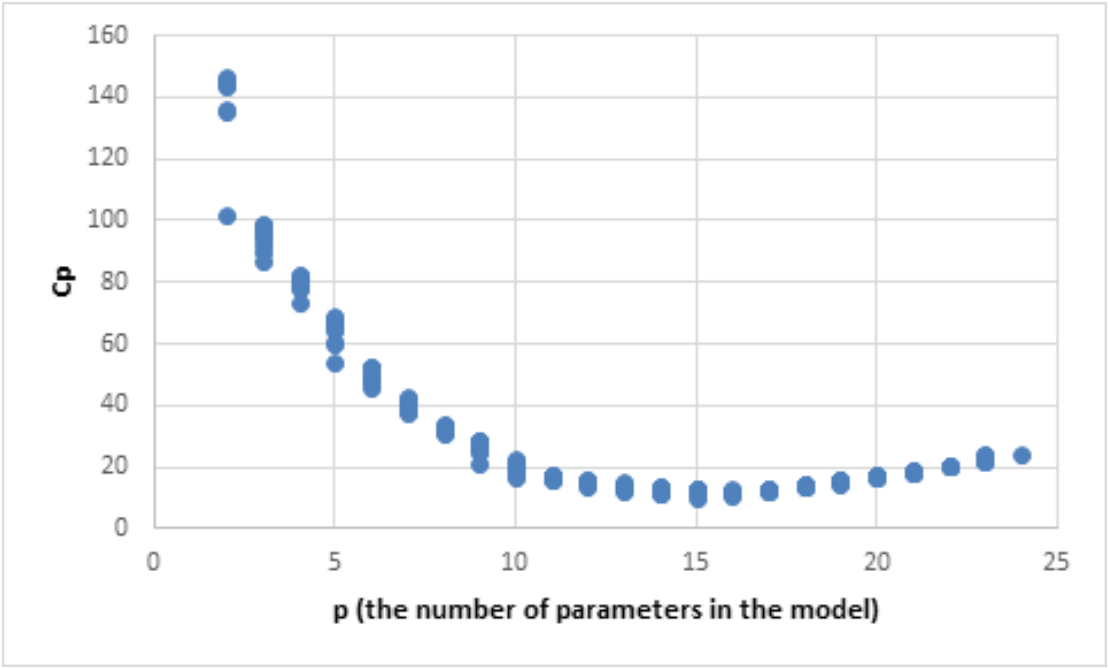

Fig. 1.

Printer-friendly version

Discussion paper