

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.

Anonymous Referee #1

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The paper presents a temperature reconstruction from Turkey over the past 200 years using 23 tree-ring chronologies.

General Comments:

I reviewed this paper before. I believe the authors submitted the same paper to the Italian Society of Silviculture and Forest Ecology in 2012. It is a modified version of the previous one. This is potentially an important research in reconstructing March-April temperature reconstruction for Turkey. The authors did an excellent job on developing the chronologies. However, I don't agree with the authors on several points in the manuscript.

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One important question is why the authors did not develop their temperature reconstruction using only the chronologies that have significant relationship to temperature? A sensible approach would be to first screen the chronologies to remove those not significantly correlated with temperature. It seems to me they highly manipulated the data and used a very complicated equation to get a high adjusted R2.

Specific Comments:

1. Page 3, line 52-53. Hughes et al., (2011) did not develop any reconstruction, but they investigated the climate signal.
2. Page 5-lines 90-91: The authors should cite the investigators produced the chronologies.
3. Page 6-lines 128-129: What the authors mean by “Third, the final reconstruction is based 128 on bootstrap regression (Till and Guiot, 1990), the best method to assess the quality of the. . .” It is an awkward and not a scientific statement.
4. Page 7-line 143: another awkward sentence “but bootstrap is much more interesting. . .”
5. Pages 9-10, Temperature reconstruction: The authors mentioned that they conducted PCA on the 23 chronologies. I have several questions and comments on this section. The authors used stepwise regression (SR), however, they did not give enough details about this procedure. I am concerned that the model could be over-fitted and some of the predictors could be just noise. What criteria were applied to end the stepwise process (e.g., p-to-enter, p-to remove)? Was a conventional statistic such as Mallows' Cp used to arrive at the final model? Does the validation CE and RE continue to increase through each step of the stepwise? Did the authors run SR on each calibration period independently or use the same variables that were suggested by the SR for the whole period?
6. Page 7, section March-April temperature reconstruction. How did the chronologies

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cluster around each pc that they used in their equation?

7. Conclusion, line 325-327: it is an awkward statement. Did any of previous authors indicated in any of their publications it is IMPOSSIBLE to reconstruct the temperature in the eastern Mediterranean. Did the authors read the mind of these authors?

8. Show the minor ticks in Figure 4, 5, and 7.

I don't recommend the paper at this stage.

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