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Climate of the Past Discussions
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# *Interactive comment on* "Temperature variability of the Iberian Range since 1602 inferred from tree-ring records" *by* E. Tejedor et al.

**E. Tejedor et al.**

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Thank you for the comments. About the calibration-verification statistics, you are right, some of the values included in the submitted version of the manuscript were wrong (sorry about that). We perhaps should have delved deeper into the development of the chronology and the climate variable reconstructed. Through this comment we aim to answer all the questions that the manuscript has generated.

1. Regarding Figure 8, the correlation was not mistakenly labelled as r2. However, as suggested by the referee, we have correctly labelled the Pearson correlation (r) and the coefficient of determination (r2). The inter-annual synchrony that can be seen between the series denotes that the reconstruction is better at mid to low frequencies than at high frequency.



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2. Regarding the calibration/verification statistics, we apologize for the error, the included in the ms were calculated using unstandardized series. The revised are now shown in Table2: RE for the period 1945-2012 is 0.56, so substantially lower than reported, but still indicating reconstruction skill.

3. Regarding autocorrelation, the correct value is 0.83, which is crucial for the development of a reconstruction retaining information of the past 21 months. To further assess the accuracy of the model we included a new figure (Model_Residuals) detailing the transfer model and regression residuals.

4. Regarding visual mismatch in the high frequency domain. Similar long-term trends between temperature and tree-rings are not necessarily indicative of a spurious relation, but might simply suggest that trees are, responding to long-term temperature trends. Sure this is difficult to assess due to limited degrees of freedom. However, preserving such trends remains a key challenge in tree-ring based climate reconstructions (Briffa et al. 1992, Esper et al. 2003b). We employed a running correlation analysis (Fig. 7) not only to test temporal stability, but also to support the selection of climate variable.

5. Regarding the regional chronology, we develop this timeseries by combining 11 sites including two pine species within an area of 90 square kilometers ranging from 1,500 to 1,900 masl. A new column in figure 3 showing the correlation between the single sites and the regional chronology provides perhaps useful information. Despite local differences among the sites, the group of chronologies shares common variance, and the mean chronology contains a clear climate signal. Data integration from this tree-ring network enabled the development of a regional rather than local reconstruction. Figure 11 shows the spatial extent of the reconstruction indicating r2 > 0.4 for the central and Mediterranean regions of the Iberian Peninsula.

6. Regarding physiological explanation. Extended between lines 15-31 of page 11 in the new version of the ms.

Please also note the supplement to this comment:
http://www.clim-past-discuss.net/cp-2016-9/cp-2016-9-AC1-supplement.pdf

Interactive comment on Clim. Past Discuss., doi:10.5194/cp-2016-9, 2016.

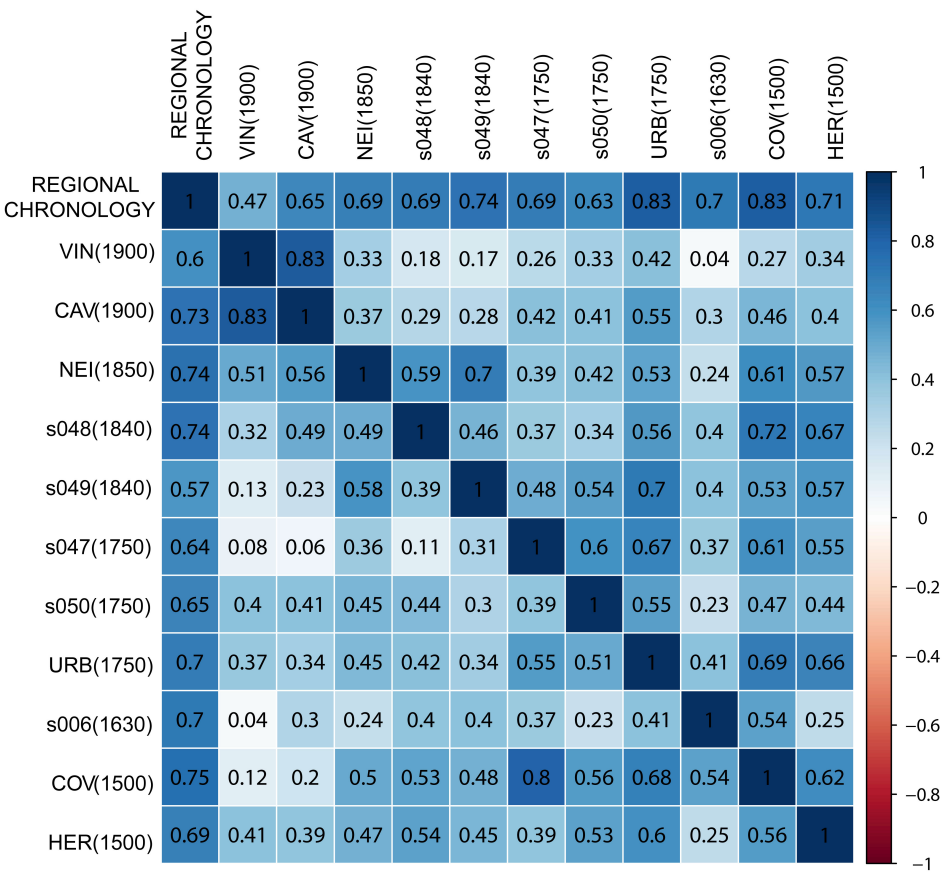
REGIONAL CHRONOLOGY
VIN(1900)
CAV(1900)
NEI(1850)
s048(1840)
s049(1840)
s047(1750)
s050(1750)
URB(1750)
s006(1630)
COV(1500)
HER(1500)
REGIONAL CHRONOLOGY 1 0.47 0.65 0.69 0.69 0.74 0.69 0.63 0.83 0.7 0.83 0.71
VIN(1900) 0.6 1 0.83 0.33 0.18 0.17 0.26 0.33 0.42 0.04 0.27 0.34
CAV(1900) 0.73 0.83 1 0.37 0.29 0.28 0.42 0.41 0.55 0.3 0.46 0.4
NEI(1850) 0.74 0.51 0.56 1 0.59 0.7 0.39 0.42 0.53 0.24 0.61 0.57
s048(1840) 0.74 0.32 0.49 0.49 1 0.46 0.37 0.34 0.56 0.4 0.72 0.67
s049(1840) 0.57 0.13 0.23 0.58 0.39 1 0.48 0.54 0.7 0.4 0.53 0.57
s047(1750) 0.64 0.08 0.06 0.36 0.11 0.31 1 0.6 0.67 0.37 0.61 0.55
s050(1750) 0.65 0.4 0.41 0.45 0.44 0.3 0.39 1 0.55 0.23 0.47 0.44
URB(1750) 0.7 0.37 0.34 0.45 0.42 0.34 0.55 0.51 1 0.41 0.69 0.66
s006(1630) 0.7 0.04 0.3 0.24 0.4 0.4 0.37 0.23 0.41 1 0.54 0.25
COV(1500) 0.75 0.12 0.2 0.5 0.53 0.48 0.8 0.56 0.68 0.54 1 0.62
HER(1500) 0.69 0.41 0.39 0.47 0.54 0.45 0.39 0.53 0.6 0.25 0.56 1
1
0.8
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
−1

**Fig. 1.**

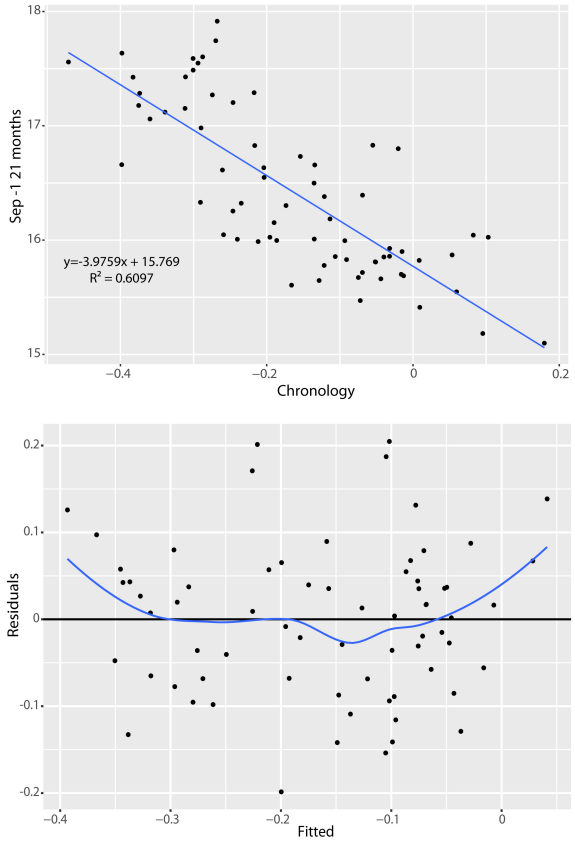


**Fig. 2.**



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