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Discussions

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**Interactive
comment**

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

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After reading this discussion paper, I was left with the doubt on whether the authors have reconstructed temperature or precipitation. Considering that all or most of these sites are probably sensitive to variations in soil moisture given their location in Mediterranean mountains, at least a mixed precipitation-temperature signal could be expected and should be analyzed and discussed.

One must be extremely careful when analyzing negative effects of temperature on tree growth, particularly at sites >1500 m asl where temperatures are most likely not warm enough to cause direct damage to plant cells. What would be the biological mechanism of a 21-month long cumulative negative effect of temperature, if it were not for an indirect effect through hydric stress of the trees? It makes sense that these

relationships are driven by temperature increasing the evaporative demand or vapor pressure deficit. Thus, precipitation or a drought index should be considered in the analysis. I don't think this issue has been addressed in the original file or in the author's response to referee #1.

Results for SEA for volcanic eruptions would show lower temperature 3 years decrease after eruptions. That would mean wider tree rings. But those could also be caused by increased precipitation as shown for other parts of the Mediterranean Basin (Köse, N. et al., 2013. An improved reconstruction of May-June precipitation using tree-ring data from western Turkey and its links to volcanic eruptions. International Journal of Biometeorology, 57(5): 691-701.)

I would suggest the use of partial correlations for temperature (secondary variable), controlling for the effect of precipitation (primary variable). Using something like the seascorr function [Meko, D.M., Touchan, R. and Anchukaitis, K.J., 2011. Seascorr: A MATLAB program for identifying the seasonal climate signal in an annual tree-ring time series. Computers & Geosciences, 37(9): 1234-1241] should be straightforward. I would recommend the same time periods and lags be analyzed for precipitation or a drought index (similar to figure 5), before performing a temperature reconstruction from negative correlations with tree rings.

It may be that the correlations with temperature are ok, but I think this deserves better explanations and justifications.

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