

## ***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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Received and published: 10 May 2016

Dear Chris, thank you for your interest and comments, which we aim to answer here.

Speaking about the Iberian Peninsula can sometimes generate misconceptions. The Iberian Peninsula is a very large territory with a broad set of climates ranging from a dry Mediterranean climate with 200 mm/year and a dry season during summer to an Atlantic climate with more than 2,500 mm/year and no dry season. The study area, as described in lines 23 to 27 (page 3) belongs to a Continental bioclimatic belt which is characterized by moderate mean temperatures (9.5°C) and a mean annual precipitation which exceeds 1,000 mm/years very frequently (Fig 2A, Fig.2AC in the manuscript). Therefore, there is no dry season within the study area. As well as in other mountain forests in Spain (see Büntgen et al., 2008, Dorado-Liñán et al., 2014), trees in the study

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area are limited by temperature. In Dorado-Liñán et al. 2014 they reconstruct the previous year's summer temperature for the past 800 years in the southeast of Spain using tree-ring width.

During the conduct of the first analysis, we also took into account precipitation and drought indices such as SPI (McKee et al., 1993) and SPEI (Vicente-Serrano et al., 2010). However, due to the poor correlation values (see Fig.1 in the comment) we decided to focus on the maximum temperature signal. In Fig.1 of this comment SPEI (1 to 24) and SPI (1 to 24) values are correlated with the BasPois Chronology. The maximum correlation ( $r=0.35$ ) is shown for the SPEI19 of August and it is very much related with the temperature, since the SPEI drought index integrates temperature, in terms of evapotranspiration, to the equation.

There are, however, as suggested, some mountain areas in the Iberian Peninsula with Mediterranean climate conditions including a dry season with its trees limited by precipitation. For instance, in Tejedor et al., 2015 we developed a drought reconstruction using the SPI index.

Büntgen, U., Frank, D., Grudd, H., Esper, J.: Long-term summer temperature variations in the Pyrenees. *Climate Dynamics*, 31 (6), pp. 615-631, 2008.

Dorado Liñán, I., Zorita, E., González-Rouco, J.F., Heinrich, I., Campello, F., Muntán, E., Andreu-Hayles, L., Gutiérrez, E.: Eight-hundred years of summer temperature variations in the southeast of the Iberian Peninsula reconstructed from tree rings. *Climate Dynamics*, 44 (1-2), pp. 75-93, 2014.

McKee TB, Doesken NJ, Kliest J (1993) The relationship of drought frequency and duration to time scales. In: *Proceedings of the 8th Conference on Applied Climatology*, Anaheim, CA, USA, 17–22. American Meteorological Society, Boston, MA, USA, pp 179–184

Vicente-Serrano SM, Beguería S, López-Moreno JI (2010) A multiscalar drought index

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sensitive to global warming: the standardized precipitation evapotranspiration index. *J Clim* 23(7):1696–1718.

Tejedor, E., de Luis, M., Cuadrat, J.M., Esper, J. & Saz, M.A. 2015. Tree-ring-based drought reconstruction in the Iberian Range (east of Spain) since 1694. *International Journal of Biometeorology*, DOI:10.1007/s00484-015-1033-7

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

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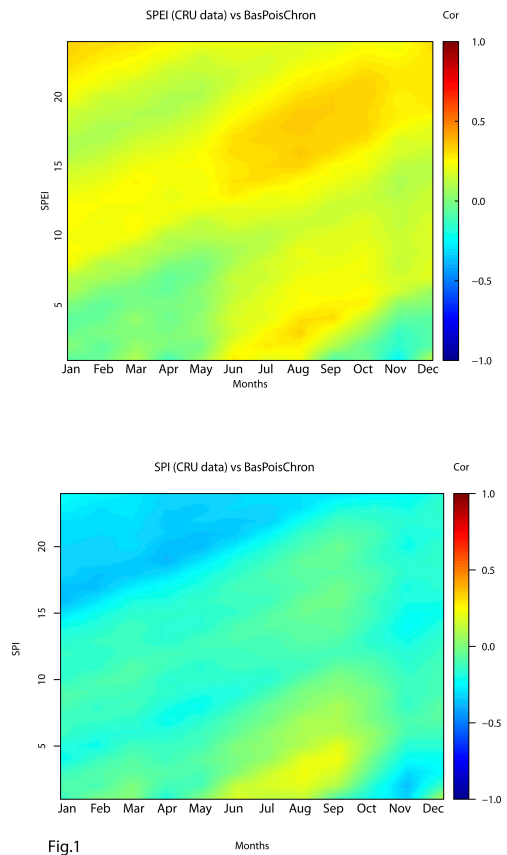


Fig.1

Months

Fig. 1.

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