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Climate of the Past Discussions

Interactive comment on "Tree-ring proxy based temperature reconstructions and climate model simulations: cross-comparison at the Pyrenees" *by* I. Dorado Liñán et al.

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The authors appreciate the general positive comments on the manuscript. Due to the short time left before the open discussion is closed, we will focus on the three mayor comments raised by the reviewer. The different methodologies applied to the tree-ring data intend to show how the application of one technique or another may affect the final quality of the chronologies and the reconstructions. Some of the developed chronologies show very low skill statistics for the calibration period and the procedures we have applied are a representation, but there exist many others. Thus, we think it is important to point out which method yields the best reconstructions, to inform the

reader of the impact that the different methodologies may have on reconstructions. This is why we show the "confidence interval" in figure 7 panel B and the individual reconstructions in the panel C. However, we will reply more explicitly about this point in the discussion.

Regarding the second point, we agree with the reviewer and in the revised version the numbers of the correlations should be included in the text.

Respect to the third point, in the original submission we discussed the discrepancies between the reconstructed and simulated temperature trends in the 20th century, indicating that the most likely cause is the lack of aerosols and land use changes in the model simulation. The reviewer indicates that the simulated long term trends throughout the 20th century may be caused by internal climate variability. This would be, however, very unlikely and at odds with a huge body of previous literature. It would mean that the observed warming in the 20th century is not related to the increase of greenhouse gases and the effect of other external forcings. In figure 7c we show the smoothed observed temperatures together with the smoothed temperatures simulated by the model ensemble. It is clear that the long term trend of instrumental temperatures lie outside the range of trends simulated by the ensemble.

The rest of minor comments and suggestions will be included in the new revised of the manuscript.

Interactive comment on Clim. Past Discuss., 7, 3919, 2011.