

Interactive comment on “Millennium-long summer temperature variations in the European Alps as reconstructed from tree rings” by C. Corona et al.

C. Corona et al.

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After the submission of your answer to the Referees’ comments, I would be happy to consider a revised version for publication in *Climate of the Past*. This revised version should take into account the Referees’ comments. In particular, the new aspects of your work compared to previous studies devoted to the climate of the Alps during the past millennium should be clearly underlined. Furthermore, some points related to the methodology used and to the interpretation of the potential causes of the changes should be clarified.

Dear Mr Gosse,

I send you the final version of the revised version for publication in *Climate of the Past*.

We try to take into account the majority of the referees' comments. Particularly, the new aspects of our study compared to previous studies devoted to the alpine climate during the past millennium have been underlined as follows:

1. a new dataset : the use of new unpublished series widely distributed in the Alpine arc has been used as highlighted in the introduction: "Unlike previous reconstruction, our reconstruction is built from series widely distributed in the Alpine arc, and, in particular, series from Western Alps are incorporated in the dataset."

2. a new methodological approach : 1. we use a refined version of the well-established RCS technique for tree-ring detrending in order to best preserve inter-annual to multi-centennial scale summer temperature variations, 2. We use an analogue-based method preserving the variance of the temperature and are thus able to work on unequal proxy series lengths;

The methodology used was assessed, particularly:

- the paragraph about the analogue technique, the critical limits to fill in missing values and the comparison with the RegEM method; - the choice of the ANN technique;

The potential causes of the changes have been clarified and the whole paragraph about the forcings has been rearranged. Two subparts have been distinguished :

5.2.1. Raw reconstruction: high frequencies (year-to-year) variations This subpart has been divided in three subsections : - Warm years anomalies (AD 1000-1900) - Cold years anomalies (AD 1000-1900) - The 20th century
5.2.2. Smoothed reconstruction: low-frequencies climatic variations and possible related forcing This subpart has been divided in three subsections : - Overview - Solar activity - Volcanic activity
Anthropogenic activity

Best regards,

Christophe Corona

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