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Climate of the Past Discussions

# *Interactive comment on* "Tree-ring based June–July mean temperature variations since the Little Ice Age in the Adamello-Presanella Group (Italian Central Alps)" *by* A. Coppola et al.

**Anonymous Referee #3**

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This paper addresses the evolution of June-July temperature in a mountain range in the southern part of the European Alps during the Little Ice Age and the post-LIA. It is stated that you fill with your reconstruction a regional gap of such temperature reconstructions. As a result you find a „divergence" between very recent instrumentally observed summer temperatures and your reconstructed temperatures.

You use an approach to standardize your tree-ring series and to establish the chronologies necessary for the reconstruction that is anymore state-of-the-art for temperature reconstructions. Individual detrending of the tree-ring series is applied instead the RCS-approach that would be appropriate for such data and studies. The effects of the



approach chosen are well known: end-effect problems and no long-term trend. And the submitted paper demonstrates this problems: divergence in very recent years and no long-term trends e.g. during the Little Ice Age.

In a recent comment to reviews you announced the application of the RCS-approach. However, you should be aware of possible points of concerns as pith-offset, age structure of the tree-ring data, modern-sampling bias and end-effect (e.g., Briffa and Melvin, 2011). You should address these points and explain your solutions for that in your revised paper. You should not only show an all-in-one figure of tree-ring series but the RCS curve used and the sample-depth distribution for it.

You use the HISTALP temperature data set for the calibration of the tree-ring data. However, it becomes not clear from the paper if you are aware of the discussions concerning the early part of the HISTALP data set (e.g., Frank et al., 2007; Böhm et al., 2010) and which version of the HISTALP data set was used. Moreover, the usage of the High-Alps HISTALP data set is problematic, because it is based on the record of only a single station for the period 1818 to 1863.

Your reconstruction shows much less variability than the instrumental data. That could be a problem of the transfer method applied: regression. You should test an alternative transfer method: scaling.

The paper presents sometimes very basic information, e.g. explaining z-scores. That is not necessary but much more discussion on the results is needed: e.g. a detailed comparison of the established reconstruction with other tree-ring based reconstruction is missed, e.g. Büntgen et al., 2006; Büntgen et al., 2011, Trachsel et al., 2012.

Final: the methodology of the paper is not state-of-the-art and results found are at least partly related to these deficits. The paper should only be published after major revisions.

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Interactive comment on Clim. Past Discuss., 8, 3871, 2012.