

## ***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 #1**

Received and published: 8 October 2012

This paper is a nice contribution to the knowledge on changing climate in the Alps. Despite the fact that the Alps are among the most researched areas regarding dendro-climatology, dealing with the edges of the Alpine region is always welcome.

While reading and evaluating the paper some concerns arise, which authors may wish to consider.

1. Term “Little Ice Age” in the title refers to a very broad and relatively loosely defined time period, I suggest more concrete definition of the time period (since your reconstruction covers a period between 1600 and 2010 (roughly) you can change this in the title of the paper.

C1807

2. You constructed 4 chronologies, two approx. 250-yrs. long and two approx. 410-yrs. long. Since the sample depth in ALL chronology is 57 trees, I suggest to display sample depth per chronology, together with moving EPS and with SSS. I really miss a good description of all four chronologies + combined chronology. How well do they synchronize (tBP and Gleichlaufigkeit), how much common variance is explained on the first principal component, . . . Add this as a table and comment in a text.

3. Your decision was to use double standardization technique – however only one of two steps is described, namely 67% spline with 50% frequency cut-off. What was then the second step? Please describe. One thing regarding double detrending is also important – double detrending tends to produce very “flat” curves with very little or no low frequency. Low frequency is important if you want to detect real variability of changes in climate in the past and define warmer and cooler periods.

4. Did you use ratios or differences to calculate your chronologies in Arstan / did you use any transformation of the data prior to standardization? Explain this in the text.

5. Additionally, using residual curve instead of standard curve (also produced in Arstan) also flattens reconstructions, so it might be a better decision to use standard curve with, at least partially, preserved low-frequency.

6. I'm not sure if two equations are really necessary, they are very general equation and do not bring much to the quality of the paper.

7. Despite the fact that your climatological time series is very long and justification that Jacoby also didn't take into account period after 1960, I do think that taking into account whole period would give you some much needed temperature variability in you reconstruction.

8. Merging Results and Discussion into one chapter is not a particularly good choice as it mixes your finding with other ones. This is just a suggestion, so you might consider it or not.

C1808

9. Fonts in figures are too small, please increase them.

I suggest editor to accept paper with major changes and encourage authors to apply suggested changes, in particular they should focus on the description of the chronology (-ies) and correct standardization procedure.

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

C1809