Clim. Past Discuss., 11, C2240–C2243, 2015
www.clim-past-discuss.net/11/C2240/2015/

Climate of the Past Discussions
Open Access

Interactive comment on "Temperature changes derived from phenological and natural evidences in South Central China from 1850 to 2008" *by* J. Zheng et al.

J. Zheng et al.

haozx@igsnrr.ac.cn

Received and published: 5 November 2015

Anonymous Referee #2

General remarks

1) Plant phenological and snow day documentary evidence can provide very useful information on seasonal temperature variability. Local time series are often impacted by peculiarities at a specific location and show unwanted impacts. The authors of this study construct regionally averaged series from single records. However, the methods are not presented nor basic information about the number of records per year, number of local time series... Recently, Ge et al (2014 with references therein on methods)

Full Screen / Esc
Printer-friendly Version
Interactive Discussion
Discussion Paper

and Wang et al (2014) reconstructed two regional plant phenological regional series temperate and subtropical regions in China from local observations. I strongly suggest testing the feasibility of this methodology.

We present all phenological records in Table S1, and add the information about the number of records per year for historical times. The methodology for reconstruction the regional phenological series from single record was added too (Line 91 to 132). About method in Ge et al. (2014) and Wang et al (2014), since there are several pieces of records from same proxy per year, which is not same as that in this manuscript, but we indeed to compare them although their study areas are not completely same, the comparison result was listed from line 125 to 132.

2) One strength of the study is the combination of three different temperature proxies. In the present form, the manuscript does not make clear what the benefit of this combination is and what this means for the model skill and the interpretation of the results. In consequence, it is very hard to understand what the impact of a single record is on the main conclusions of the study. You could also consider a sub-sampling approachto the stability of the reconstruction.

We agree, and the more information on benefit of using combination of three different proxies compare to single proxy has been added in the section “result and discussion” from 304 to 323. In the conclusion part, about accuracy of multi-proxy sentence has been deleted.

3) The study aims at reconstructing mean annual temperatures. Due to the fact that at least two proxy types (plant phenology, tree rings) only story temperature signals of the growing season, it would be desirable to see the differences of model skills with different targets, especially growing season temperature vs annual mean.

We agree, and added the growing season temperature in Figure 4 and made a comparison from line 213-217 and 258-266.

CPD

11, C2240–C2243, 2015

4) I am not sure whether wavelet analysis is really needed here to highlight the changesin temperature. Maybe remove?

Yes, removed.

5) Please thoroughly check grammar and spelling when revising the manuscript.

We submitted the manuscript to the English polish agency by native speaker, and we think grammar and spelling are better now.

Some detailed remarks on figures and tables.

Table 1: consider exchanging significance level indicators with ** and *** for p<0.01 and p<0.001. Why are there positive correlations of tree ring width with temperatures at four out of five sites? What is the process behind the single site with negative correlations? Why do use "∼" in the column duration? Are there dating uncertainties? The same applies for column Location where the altitudes seem to be estimated.

We agree, and changed; the related negative correlation introduction has been added in the 2.2.3 tree ring data section, Line 171-179 ; "∼" changed with "-"; No dating uncertainties existed in tree ring proxy, and the measurement method was added in the 2.2.3 section, see Line 156-163.

Figure 2: What is the meaning of "0.1 HZFFT smooth"? Please explain. What do you mean with "based on a 95% confidence interval"? Consider making 2 figures with a) in one figure and (b)-(d) in a second figure. The message is not very clear, yet.

We agree. We explained in Figure 4 caption, which is 0.1Hz FFT filter indicating the 10-year smooth of the reconstruction;

"Based on a 95% confidence interval" changed "with a 95% confidence interval, the uncertainties are calculated from the reconstruction equation from the reference of Michaelsen, 1987 with Minitab software.

We divided this figure into two figures.

CPD
11, C2240–C2243, 2015

Interactive comment on Clim. Past Discuss., 11, 4077, 2015.