

## ***Interactive comment on “The response of annual minimum temperature on the eastern central Tibetan Plateau to large volcanic eruptions for the period 1380–2014 AD” by Yajun Wang et al.***

### **Anonymous Referee #2**

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General comments: This study reconstructed the annual mean minimum temperature from the previous August to the current July using tree-ring width data collected at one site located in the eastern central Tibetan Plateau and analyzed the cooling effect of volcanic eruptions on the regional annual mean  $T_{min}$ . The results of this paper is very interesting and important for further understanding of the dynamic mechanism of temperature variability in the study area. I recommend to publish this paper in *Climate of the Past* after a minor revision.

specific comments: 1. In this study, the extreme years was defined using the threshold of the mean plus/minus 0.5 SD of the reconstruction series. Under this criterion, it

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seems that there are too many years are identified as extreme events. I hope the authors can give a consideration that whether it is plausible if the extreme years was defined based on the threshold of the mean plus/minus 1 SD/1.5 SD?

2. The statistics of calibration and verification show a relatively good skill for the regression model. However,  $R_{bar}$  values of the tree-ring width indices show a relatively large fluctuation over the whole period of 1380-2014. It is interesting that the highest  $R_{bar}$  values appear in two special intervals (i.e., the cold interval of 1800-1820 and the warmest period of 1980-2014). The cold period of 1800-1820 was driven by both the weak solar activity (Dalton Minimum) and a few very strong tropical eruptions (e.g., the Tambora eruption in 1815 and the other in 1809), while the warmest interval of 1980-2014 is likely a result of human activity. The cold period of 1800-1820 and the warmest interval since the 1980s were also found in the previous studies (both tree-ring-based temperature reconstructions and instrumental temperature data) on the Tibetan Plateau. I hope the authors can give a discussion on these two special periods based on the previous references.

3. The sentences in the paragraph 245 are need to be improved.

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