

## ***Interactive comment on “Reconstruction of the March–August PDSI since 1703 AD based on tree rings of Chinese pine (*Pinus tabulaeformis* Carr.) in the Lingkong Mountain, southeast Chinese loess Plateau” by Q. Cai et al.***

**Anonymous Referee #1**

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The Chinese Loess Plateau is an interesting area for climate change studies. In particular, the hydroclimatic conditions in the Loess Plateau are very sensitive to climate change. Normally, it is very difficult to find trees more than 200 years due to severe human disturbances. This manuscript made a 300-year PDSI reconstruction in the southeast Loess Plateau, showing up-to-date understanding of drought variations. This manuscript is based on standard dendrochronological methods. In general, it is well presented. I recommend its acceptance after a median revision.

comments: 1. In the end of the Introduction, it is better to pose a hypothesis or ques-

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tion, proving a clue for presenting results and discussions. For example, the authors may have one question: whether did the drought severity or frequency increase in response to the warming? But, this is just one example. The authors may propose other questions.

2. The authors should introduce some basic information about cambial activity of Chinese pine. Such information will be useful for explaining tree growth-climate relationships.

3. The third site only includes eight cores from four trees. The author should explain why only four trees were selected. Normally, more trees are necessary for the analysis.

4. In this study of Lingkong Mountain, the year 1721 was identified as the third driest years, and 1719–1726 was identified as one of the dry periods during the past 306 yr. It is interesting to show this dry period. However, it is necessary for the authors to find historical documents to confirm this event and the story behind it.

5. “Possible linkage with ENSO and solar activity”. Apart from frequency analysis, more analysis is necessary to support the linkage between the drought variation and ENSO/solar activity. For example, the ENSO index can be used.

6. It is necessary to use RE and CE to show the quality of calibration/verification.

7. Table 1 can be deleted and add one sentence in the text.

8. Table 3, all drought periods are indicated in a figure and it is not necessary to repeat them in a table.

9. PDSI is not measured. Instead, the authors can use Dai-PDSI in Fig. 5 and the text.

10. It is interesting to show the linkage between the reconstructed PDSI and the summer IAP0. A deeper analysis about the mechanism between them is necessary.