

# ***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 #3**

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This paper presents an interesting reconstruction of PDSI in the southeast part of the Chinese Loess Plateau for the period 1703–2008. Based on 54 trees (108 cores) analyzed with standard dendrochronological techniques (standardization with a negative exponential curve and linear regression model), it is generally well-written. I recommend its publication after a few minor revisions listed below.

Comment 1. 2.1. Study area and climate, Fig 1. The authors should have mapped the existing tree-ring network or tree-ring reconstructions in the region. These informations would help the reader to understand that their reconstruction really fills a gap

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in this region. Comment 2. 2.2. Tree-ring data. Informations about the position of the tree line in the Lingkong Moutain area would be helpful to know whether the pine trees have been cored at the upper part of their area of distribution. I am also surprised by the reduced number of tree in populations from sites 2 (10 trees) and 3 (4 trees). The authors should explain why they have chosen to include these trees in the final reconstruction. In this section, I think that information about the Mean Segment Length (average number of rings per core) should be added as this parameter has an influence on the maximum wavelength of recoverable information by a resulting chronology. Comment 3. 2.4.. Statistical analysis. The authors have computed the Coefficient of Efficiency (RE=0.437) to evaluate the model skill. Would it be possible to provide the coefficient of efficiency (CE) (Comparison the estimated data for the veriññcation period to the mean of this period) ? Table 1 is very short. It should be removed and added into the manuscript Comment 4. 4.1. Annual, inter-annual and centennial variation of the PDSI. Amongst the 10 wettest years listed in the first paragraph of this section, 4 occurred between 1946 and 1950. Was this period really wet in the area or does this result from remanance (persistence) effects in the tree-ring chronologies? How did you compute the accumulated anomalies of PDSI ? Comment 5. 4.2 Temporal and Spatial representation of the PDSI reconstruction Could you provide the distance between Lingkong Moutain and (i) the Ortindag Sand Land and the Kongtong Mountains ? Comment6. Fig.4b. I am really surprised by the persistent positive correlation between PDSI and tree-series especially for previous years as very low correlations are observed with both temperature and precipitations. Could you comment on these differences ?

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