

## ***Interactive comment on “Reassessing long-term drought risk and societal impacts in Shenyang, Liaoning province, Northeast China (CE 1200–2015)” by LingYun Tang et al.***

### **Anonymous Referee #2**

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Based on the instrumental data and historical documents, this study reassessed long term drought risk and societal impacts in Shenyang, China (1200-2015). A standardised precipitation index was developed to combine a long drought series. Then the series was analysed for drought frequency, severity, typology and their social impacts. The study is interesting and the methods are appropriate. My suggestions are as follows.

General Comments:

(1) The description of the Data sources especially the instrumental data (Chapter 3.1.2) is not clear enough now. I suggest rewriting this part and making the following concerns

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clear.

- a. the introduction of the datasets
- b. which sites were used in this study and where are their locations
- c. what kind of data were used from the dataset and how they were dealt with

(2) The figures especially the Figure 1 and Figure 2 are not clear enough with too small numbers/words and little explanations on the lines, dots and so on. I suggest displaying the figures with a larger fonts and better legends or illustrations.

Specific suggestions:

Line 26: delete “CE” or explain it when it comes out for the first time

Line 49: change “an” to “a”

Line 104: change “in 1736” to “from 1736 to 1911”. The records of “Yu- Xue-Fen-Cun”(the depth of rainfall and snow) are only available in this period

Line 127: delete “and,”

Line 227: change “belonging” to “belonged”

Line 233-236: change another example. The example here is inappropriate. In ancient China, there were many circumstances may result in no tax. For disasters, not only droughts but also floods, earthquakes, infectious diseases and astronomical hazards may be the reasons for collecting no tax. For other situations, when the emperors would like to share their joys on having babies or show their mercies to the public, they may also sign a decree for tax free. In my perspective, the record here is certainly not definitive proof of drought.

Line 293: change “People’s Republic of China” to “the People’s Republic of China”, same elsewhere

Line 298: a “)” is missing in this line

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Line 548: a “table” is missing before the “1”

Table 1: the sentence of “Earlier weather phenomena can be converted into modern language descriptions through Oracle bones records” may lead to misunderstanding. Someone who is unfamiliar with Chinese history may think that before Qing Dynasty Chinese people use Oracle bones to record.

Table 2:

- a. the column of “Periods/start time” may lead to misunderstanding. People may regard the years in the column as the start time of the dynasties instead of the region names
- b. how the administrative boundary changes during different dynasties should be mentioned in this table
- c. rethink the function of this table. If it has little relationship with subsequent analysis and summary, it could be moved to supplementary material.

Table 6:

- a. Table 6 is not mentioned in the text part
- b. How does the column of “Classes 1-3” come out? Is it the summation of “class 1”, “class 2” and “class 3”? Is there any mistake in the numbers of this column?

Figure 1:

- a. the words and numbers are too small
- b. the Grid Lines with geographic coordinates should be added to this map
- c. the name of Liaoning can be added on the region of province
- d. the locations of data sites especially the instrumental data can be added to the map

Figure 2:

- a. the words and numbers are too small

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- b. the meanings of the lines and dots should be explained to the readers

Figure 4: the meanings of the lines and dashed lines should be explained to the readers

Figure 5: the different meanings of different colors should be explained to the readers

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