We are very grateful for the constructive comments, suggestion and questions from the reviewer #2. According to these, we have done careful revision to our manuscript. The following text gives our point-by-point replies and explanations (in black) to the issues listed (in blue and italics).

This study compared proxy data and model simulations during the last 1000 years to examine the occurrence of persistent droughts in Eastern China. It was found that the model is able to simulate 6 persistent droughts revealed by the proxy data. The spatial extent and the possible physical mechanisms behind the 6 persistent droughts were also analyzed. I think this work will make a valuable contribution to understand the drought variations and mechanisms in China. However, parts of the results shown are not convincing and some conclusion are rough. Therefore, this manuscript may need a major revision. My comments are listed below:

1) Due to uncertainties in the climate forcing data and the model deficiency in simulating large natural sea surface temperature (SST) variations, many models are not able to simulate the precipitation patterns/variations over the land. It seems that this type of model deficiency is also exist in CCSM 2.0. Among the 10 persistent droughts identified by the proxy data, only 6 of them were roughly in-line with the models. Are the correlations between the proxy DWI and the modeled precipitation in Eastern China significant during the last 1000 years? What are the relationships between the DWI and the proxy solar and volcanic activities during the last 1000 years?

1. Yes, the correlation between the simulation and reconstruction by Zheng et al. (2006) is significantly (r=0.17, P<0.01). (See the reply to the similar 18th specific comment of Reviewer #1).

2. We also did not find the dry/wet conditions over eastern China in proxy data strongly response to the solar activity during the last millennium. The variations of the DWI series and solar forcing series (Vieria, et al., 2011), after 10 yr and 30 yr smoothing, are not significantly correlated with each other, r = 0.04 and 0.06, respectively. A direct comparison between DWI and the volcanic forcing time series (Gao et al., 2008) shows that dry conditions or significant decreases in precipitation over eastern China occurred in active periods of volcanic eruption. However, the correlation coefficient is -0.04 between these two series. (See the reply to the 15th specific comment of Reviewer #1).

2) Page 6353, 1st paragraph. There are large differences between the modeled spatial distribution of droughts in 1482-1489 and 1638-1641 and the proxy data. What are the pattern correlations between the proxy data and model simulations for the two events?

The pattern correlations over eastern China between changes in modeled precipitation anomalies and DWI (Zhang et al., 2003) are -0.59 and -0.83 during theses two droughts, respectively. Note, for our purposes herein, the modeled precipitation is regridded from their native resolution to an even 0.5^0 x 0.5^0 grid. (See the reply to the 13th specific comment of Reviewer #1).

3) Page 6354, 1st paragraph. Though the 6 persistent droughts are associated with weak land-sea thermal contrast, there are many epochs with weak thermal contract are not associated with droughts. Therefore, the changes in land-sea thermal contrast may be not the 'DRIVER' of the drought. What are the correlations between land-sea thermal contrast and the proxy and modeled precipitation?

Agree. The decadal variations of rainy season precipitation over eastern China correlates significantly with the land-sea thermal contrast during the last millennium (r =0.21, p < 0.01). After calculate the correlation between these two series, we further explain why the

droughts do not occur in some weakened monsoon periods, and give a more convinced conclusion about the relationships between ILSTD and monsoon variations. (See the reply to the similar 14th specific comment of Reviewer #1). The correlation between modeled land-sea thermal contrast and the proxy precipitation was not analyzed due to the reason that the Reviewer gave in the 5th comment.

4) Page 6354, line 24. The Fig.6e-f cannot be found in the figure.
It is corrected to Fig.7c-d in the revised manuscript.

5) Page 6355, 2nd paragraph. The statements that the relationship between droughts and SST are misleading. To support your statements, you'd better compare the proxy DWI with proxy SST, or the modeled precipitation with modeled SST. Otherwise, you are comparing an orange with an apple. Additionally, did you compute the SST anomalies based on the climatology during the last 1000 years? If so, the strong warming in recent 100 years may exaggerate the cold SST anomalies during the LIA. Maybe it is better to remove the centennial SST signals before computing the SST anomalies for Fig.7.
I think it's a misunderstanding. We have described that Fig.7 shows a temporally consistent relationship between the droughts and SST pattern in Pacific Ocean could not be found in the model. For more clearly descript and following the suggestion of removed the centennial SST signals of Reviewer #2 and redefined the droughts periods of Review #1, the paragraph has been reconstructed and Fig.7 (Fig.8 in the revised version) has been redrawn (see following). We also compare the proxy DWI with proxy SST in section 4.2.1. See the reply to the 15th specific comment of Reviewer #1)

"Figure8 shows maps of the modeled global sea surface temperature anomalies for six well-captured droughts. The 100yr high-pass filtered map is relevant for the purpose of removing the centennial SST signals because a strong warming in SSTs in recent 100 years may exaggerate the cold SST anomalies during the LIA. As shown by Fig. 8, a temporally consistent relationship between the droughts and SST pattern in Pacific Ocean also could not be found in the model. There is an El Niño-like SST pattern occurring during the droughts of 1129-1144, 1435-1448, 1466-1491 and 1631-1648; a La-Niña-like SST pattern occurring during the droughts of 1354-1365; and a neutral pattern occurring during the droughts of 1204-1210."

6) Fig.6a. I am wondering how the control run was made. Usually, the forcings (e.g., solar and volcanic activities) remain unchanged during the model run, therefore, the control run does not contain any meaningful calendar years (e.g., year 1440 AD). It is thus misleading to compare the control run with the proxy data to examine the model performance (see page 6355, lines 27-29).
Yes, we agree the control run does not contain any meaningful calendar years, we redraw the Figure. I think it's a misunderstanding of the contrast group. Actually we compare the control run with full forcing run and solar run to examine weather overlap between the historical droughts and those in the forced run occur by chance. Although having such misunderstanding, we agree to delete these sentences in our revised manuscript due to one drought is observed in the control run and in the forced run at the same time is just a matter of chance.