

Interactive comment on “Socio-hydrologic perspectives of the co-evolution of humans and water in the Tarim River Basin, Western China: the Taiji–Tire Model” by Y. Liu et al.

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1. A historical dynamics of coupled social and hydrological systems within TRB as well as the associated climatic and ecological systems are reviewed and analyzed by three stages. The paper is interesting and well organized. The history of TRB reflects the human dependence on hydrologic system in the early stage, and the human impacts on the water system with the increase of social productive force. A few minor comments are provided below.

Answer: We thank the reviewer’s positive comment on the manuscript very much.

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2. Lines 3-5 on page 12755: change to “All the great ancient civilizations of Egypt, China, India and Babylon are developed along...”?

Answer: We have revised the sentence accordingly. Thanks.

3. Lines 3-5 on page 12756: change to “This paper represents a first attempt at undertaking a historical socio-hydrological study on Tarim River Basin in northwestern China from the distant past (more than two millennia before) to the present.”?

Answer: Revised. Thanks.

4. Lines 8 on page 12756: change to “human and water systems”?

Answer: Revised. Thanks.

5. In Section 2 “Study area”: Figure 4 can be referred. Therefore, Figure 4 can be changed to Figure 3.

Answer: The Fig. 3 was referred earlier than Fig. 4. Also, the Fig. 4 is more carefully discussed in Sect. 4. The authors prefer to keep the original order of figures. Thanks all the same.

6. Section 3.1: The title of “The mathematics of development” is subject to change.

Answer: We have retitled the Sect. 3.1. Now it reads: Climate variation and river course change. Thanks.

7. Line 8 on page 12761: change “b” to “3b”.

Answer: Revised. Thanks.

8. Line 11 on page 12761: change “say” to “documented”

Answer: Revised. Thanks.

9. Line 12 on page 12761: change “implies” to “implied”

Answer: Revised. Thanks.

10. In Figure 4c, it is not clear that the association of the two lines and the vertical axes.

Answer: We have updated the Fig. 4c with correcting mis-spelled word “anomaly” and clearly labelling the vertical axes with the two lines. Thanks. Please note that after we moved the Taiji-Tire part earlier as Sect. 3, the previous Fig. 4 is now Fig. 5 in revised manuscript.

11. Line 14 on page 12772, “and a series of water conservancy. . .”

Answer: Revised. Thanks.

12. Line 22 on page 12772, “rejoins”?

Answer: We have changed the word “Now” to “Then” in the corresponding sentence and thus the tense does not need to be corrected. Thanks.

13. Line 27 on page 12772, delete “dry”?

Answer: Revised. Thanks.

14. Line 10 on page 12773, “has also been improved”?

Answer: Revised. Thanks.

15. Lines 2-3 on page 12773, double check with “: : groundwater depth in the lower reach of the Tarim River increased from 8–10m to 2–4 m”

Answer: Thanks to the reviewer’s reminds. We have double check with the data by re-examine the references and found that it should be that the groundwater table has been uplifted from 6-8m to 2-4m (Chen et al., 2007b). We have updated the sentence in the revised manuscript.

Reference: Chen, Y., Li, W., Chen, Y., Xu, C., Zhang, L.: Water conveyance in dried-up riverway and ecological restoration in the lower reaches of Tarim River, China. *Acta Ecol. Sin.*, 27, 538-545, 2007b.

Please also note the supplement to this comment:

<http://www.hydrol-earth-syst-sci-discuss.net/10/C7427/2014/hessd-10-C7427-2014-supplement.pdf>

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 12753, 2013.

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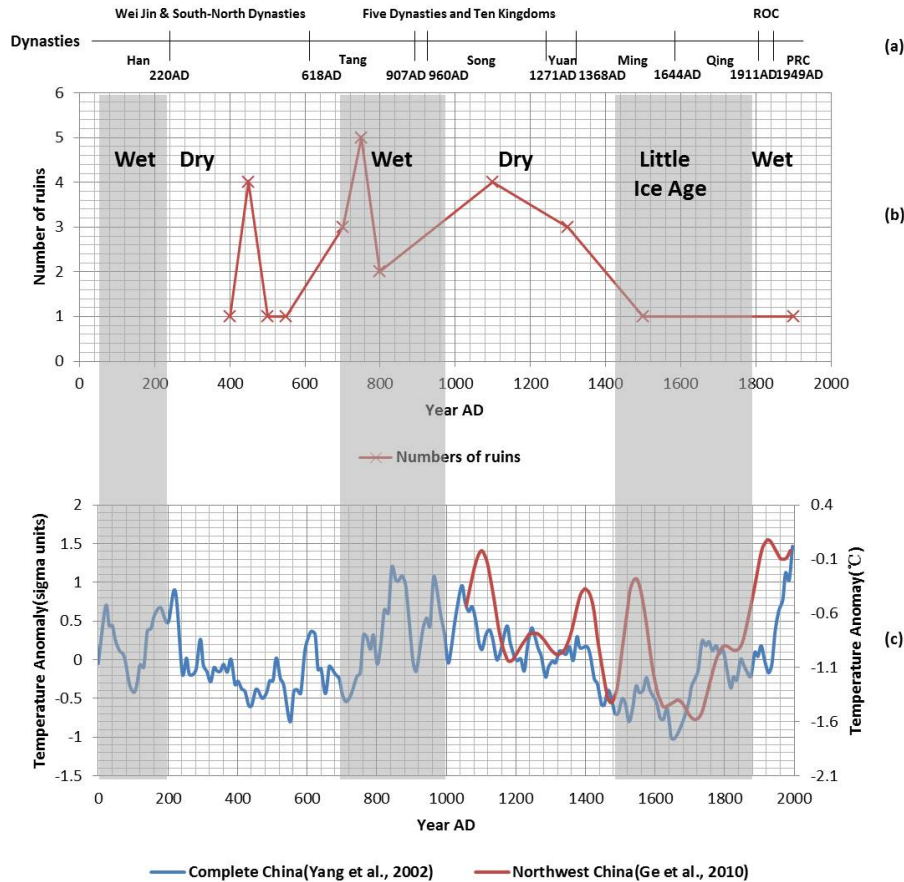


Fig. 1.