Climate of the Past Discussions

Clim. Past Discuss., referee comment RC1
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Comment on cp-2021-159

Pál Sümegi (Referee)

Referee comment on "Changes in paleo-underground water levels revealed by water wells and their relationship with climate variations in imperial China" by Chenyao Jiang et al., Clim. Past Discuss., https://doi.org/10.5194/cp-2021-159-RC1, 2021

Changes in paleo-underground water levels revealed by water wells and their relationship with climate variations in imperial China

Chenyao Jiang, Xin Jia, Xinggong, Meng Ou, Harry F. Lee

The authors of the manuscript entitled „Changes in paleo-underground water levels revealed by water wells and their relationship with climate variations in imperial China" chose a very important topic and a journal suitable for publication. The method (paleo-underground water levels = PUWL) is suitable for clarifying the selected topic, and the well-documented 482 wells in 9 cities provided statistically interpretable data for the last 2200 years. The authors emphasized well the issue of the critical stage of social development in human history, and this issue was also well addressed, as they took into account the level of groundwater, that ancient civilizations could only disturb to a minimum degree. The obtained values were well evaluated and the selection of the sites was well solved, the cities with a very insignificant number of excavated wells and thus carrying statistical uncertainties were properly separated from their analyses. The most significant value of the manuscript is that, based on wells from different cities, both local and regional comparisons were made, as well as comparisons with written sources, and they concluded their results according to these factors on groundwater-level. It is of great importance that they compared their data with the temperature values of the area, with the arid-wet index. As these comparisons are also presented in figures, the figures are essential and necessary for an understanding of the presented results. The manuscript is an excellent source material that can be developed in many directions and is suitable for global comparison - it will receive a significant number of references if published. Congratulations to the authors.

I accept the MS with minor revision.

Mistakes:

The reference in line 45 (Institute of Archaeology, CASS, 2003 and 2010) does not appear in the reference list, it has to be completed and the abbreviation must also be displayed.

The legend of Figure 1 needs to be improved, as the colour of Yellow Sea and Chinese lakes is completely the same in my pdf version.

I marked the typographical errors in the pdf version of the manuscript, which I also enclose. These must be corrected.

Please also note the supplement to this comment:
https://cp.copernicus.org/preprints/cp-2021-159/cp-2021-159-RC1-supplement.pdf