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Reply on CC1

Jianquan Dong et al.

Author comment on "GSDM-WBT: global station-based daily maximum wet-bulb temperature data for 1981–2020" by Jianquan Dong et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2022-309-AC1>, 2022

Dear Jonathan Buzan,

Thanks for your helpful comments.

The effect of long-term average air pressure was analyzed in the manuscript section of Sensitivity Analysis. As for high T_w , it is noticed that the average biases for such stations where average T_w is above 20 degrees are usually around 0–0.1 degrees, which is similar with previous studies such as Raymond et al., 2020. According to your comments, we will supplement related contents in the next version of the manuscript.

We noticed the minor error of old version's code and also referred the updated version to calculate T_w in this study. It is quite useful to use HumanIndexMod to calculate different heat indices. However, as described in the manuscript, the new dataset not only focused on the calculation of T_w . It is also expected to obtain the better quality-controlled and homogenous data which needs a series of complex procedures. Therefore, we decided to choose one important and representative heat indicator to produce the dataset for supporting the research of humid heat events. The wet-bulb temperature, a thermodynamic variable which has been globally used and recognized to analyze the humid heat stress and its effect, was eventually selected. It is also hoped that more datasets including other heat indices could be produced in the future.

In addition, many thanks for your suggestions on abbreviation of wet-bulb temperature and the potential improvement of our dicussion, as well as the useful references. We expect that all could be improved in the next version.

Best regards,

Jian Peng, Dr.
On behalf all the authors