

Details of the revisions and responses to **Reviewer 1** comments on the manuscript entitled '*GSDM-WBT: Global station-based daily maximum wet-bulb temperature data for 1981–2020*' (essd-2022-309)

We would like to thank the reviewer for your insightful and constructive comments that help to enhance the overall quality of our manuscript. Our responses (on a comment-by-comment basis) are indicated in blue text, and all updates to the original submission will be highlighted in the revised manuscript.

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**Comments:** The wet-bulb temperature (WBT) comprehensively characterizes the temperature and humidity of the thermal environment and is a relevant variable to describe the energy regulation of the human body. The manuscript proposed a global station-based daily maximum wet-bulb temperature data for 1981-2020, which is an important and exciting study for such a field. The GSDM-WBT dataset can effectively support the research on global or regional extreme heat events and humid heat waves. I think the study is well analyzed and did not have more comments. although I think the author should polish the expression of the manuscript.

**Response:** Thank you for recognizing our new dataset and providing the comments. We have further polished our manuscript for more professional expression and better understanding.