

Dear Baptiste Vandecrux editor,

We would like to take this opportunity to thank the editor for your constructive comments and relevant questions. By adding the answers/revisions to these questions to the revised version of the manuscript, we feel that the quality of the manuscript has been improved. All modifications are only included in the revised manuscript for the sake of non-repeat. Answers to your concerns and questions are presented as follows.

Yours sincerely
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Respond to the editor comments:

The referees' comments are reproduced in black hereafter, and responses are shown in red.

Regarding your response to reviewer #2, the link provided for the humidity sensor is not valid.

Please provide a link to the technical document you are referring to and a quote stating that the conversion with regard to ice is done by the sensor.

Response: Sorry, the new link: <https://www.vaisala.com/en/products/weather-environmental-sensors/humicap-humidity-temperature-probe-hmp155>. The description has been added in the manuscript.

I also noted that the Panda S data was already posted on the data portal of the University of Wisconsin. Please mention it and give the following reference for the U. Wisconsin version of the data:

Antarctic Meteorological Research and Data Center: Automatic Weather Station quality-controlled observational data. AMRDC Data Repository. Subset used: [DATE 1] - [DATE 2], accessed DD-MM-YYYY, <https://doi.org/10.48567/1hn2-nw60>.

Please explain in the text how your version of the data differs (or not) from the data posted by U. of Wisconsin.

Response: The data availability has been modified and the reference has been added in the manuscript. Our data is the same as the data posted by U. of Wisconsin, but the method of data quality control is different, the detail information of our method, please see section '2.2 Data quality control' in the manuscript.