Comments on "IMAU Antarctic automatic weather station data,

including surface radiation balance (1995-2022)"

Given the critical impact of the Antarctic ice sheet on global climate change and sea level rise, it is urgent to develop an improved in situ meteorological observation network. This manuscript reported almost 30 years of Antarctic surface meteorological observations from 19 Automated Weather Stations (AWS) operated by the Institute for Marine and Atmospheric research Utrecht (IMAU) at Utrecht University, including especially the surface energy and mass balance. The manuscript described in detail the variables, instrumentation, and processing of the observational data, and ultimately produced an accessible dataset of great importance to Antarctic climate change and surface mass balance studies. How the data were preprocessed and corrected were also described with detail in the manuscript. This is important for the assessment and development of regional climate models for the Antarctic Ice Sheet, the validation of remote sensing as well as reanalysis products, and contributes to an increased understanding of Antarctic surface climatology. The subject of this work is aligned with Earth System Science Data and is very valuable. I recommend publishing it in ESSD with minor revisions.

 The introduction is written concisely and logically, but it is short enough to provide more background to the study. I would suggest that the authors give an appropriate description about the important role of Antarctica in the global climate system, as well as adding a more detailed overview of the meteorological observation networks that are currently being set up. This could include more detail on some of the projects and programs already mentioned.

- 2. Regarding the radiative component, some of the short-wave radiation in the previously released data (https://doi.pangaea.de/10.1594/PANGAEA.910473) was observed during the winter months (most likely during the polar night), and I am not sure whether this is due to instrumental error or some other phenomenon (may not be an error, but an objective phenomenon). I would like to know if this problem still exists in the range reported in this manuscript.
- 3. -Another similar problem is that some of the relative humidity in the previous data exceeded 100%. How this data was processed in this work?
- 4. There are some acronyms that appear multiple times in the manuscripts, such as the British Antarctic Survey (BAS), and whether it is possible to retain them only in their first appearance.
- L66-67: Is it possible to correct for the effects of this positional movement on meteorological observations? This would be much more useful for the use of the data.
- Figure 1: I think it would be useful to add a wind vector scale to measure wind speed.

-Similarly, it is suggested that climatological values for other atmospheric variables be given, which can add the reader's understanding of the Antarctic surface climatology. They can be placed in a supplementary file.