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Comment on amt-2021-183

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Referee comment on "On the quality of RS41 radiosonde descent data" by Bruce Ingleby et al., Atmos. Meas. Tech. Discuss., <https://doi.org/10.5194/amt-2021-183-RC2>, 2021

This manuscript represents the first comprehensive study to evaluate the quality of radiosonde descent data, develop a correction scheme for temperature warm bias and evaluate its impact on NWP. It has great potential significance to double our global in-situ soundings for various applications.

Specific Comments:

- Abstract: How about any results for humidity? It would be useful to mention that the descent data with parachute and pressure sensor are better.
- Besides the biases of the descent data studied here, another important question is which part of descent data are usable. In other words, how to quality-control the descent data? For example, if the sensors are covered by pieces of balloons, the data should be QCed out. Is there a way to identify them? Fig. 4 shows how the balloon, parachute and radiosonde can be tangled together. It is even harder to figure out what they look like during the course of descending.
- L328-329: It is awkward to show the correction results before describing the corrections.
- Section 4 didn't specifically discuss the impact of parachutes. Table 4 shows that Lindenberg has the largest coefficient A , which means the largest biases at the same fall rate. It would be useful to add Lindenberg and Sola data to Fig. 20.
- NCAR dropsonde team made a lot of efforts to carefully design the dropsonde parachute (see Hock and Franklin 1999), such as the shape, size, material and so on. For future development, is it worth to use better parachutes for radiosondes? How about develop a better balloon-cutting device, so the balloon remnants would not affect the data?