Comment on essd-2021-175
Anonymous Referee #1

Referee comment on "Measurements from the University of Colorado RAAVEN Uncrewed Aircraft System during ATOMIC" by Gijs de Boer et al., Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2021-175-RC1, 2021

General comments:

This paper provides promising 80 hours of data for environmental research to improve the understanding of the interaction between the surface and cloud layer. The authors presented a very useful payload for the atmospheric study and demonstrated new perspectives the data offer. In addition, the data is high quality, and the manuscript is well-written. Thus, I recommend the publication with several minor suggestions.

Specific comments:

P4, lines 95-115, The Vaisala sensors resolution and repeatability are not under the flight condition (60-70 km/hr). What is the uncertainty for the temperature and RH data using this sensor? Will you please comment on the aerodynamic effect of the flow distortion caused by the aircraft and the sensor on the measured temperature? Or how much different will it be related to the static air temperature? Figure 6 shows the air temperature. Is it static air temperature?

P4, line 124, the SHT-85 sensor was logged at 250 Hz. Does this sampling rate reflect the
actual measured value, or is it based on the electronics response time? Do you have any spectral analysis or reference to confirm the actual response rate of the sensor?

P5, line 139-141, Are the system accuracies under the 50 Hz sampling resolution? Or 1 Hz sampling resolution? Data from the VN-300 were logged at 50 Hz resolution. How many variables recorded are real measured values? It will be great to share more experience on how to use VN-300 under higher time resolution reliably.

P9, section 4, what are the error propagation to the TAS estimation and the wind estimation?