

## ***Interactive comment on “Atmospheric aerosol, gases and meteorological parameters measured during the LAPSE-RATE campaign” by David Brus et al.***

### **Anonymous Referee #1**

Received and published: 3 November 2020

The manuscript by Brus et al. summarizes atmospheric data collected with UAS and ground-based sensors during the LAPSE-RATE campaign in Colorado in 2018. This is a rich dataset that will likely be mined for many years to come. The introduction would benefit from the inclusion of specific objectives. The summary would benefit from a discussion of what insights these data might provide, what questions might be addressed and answered, and where might future work be headed. Some ideas are presented below for improving and condensing the tables such that the data repository may be better linked to the manuscript.

L7, this sentence is a bit awkward. Let the data speak for themselves. No need to state

C1

in the abstract that things were reliable and scientifically sound. . .

L34, the acronyms should be listed after they are defined.

L40-45, this paragraph would benefit from the inclusion of (a) specific objectives and (b) specific hypotheses to be tested.

L47, are should be were, is should be was. careful of tense throughout the paper. past tense describing work that has been done.

L55-60, consider adding information on particle size bins and sampling rates for the particle counters.

L73, neither should be for.

Section 2 should provide information on the placement of the sensors and how this placement was designed to minimize impacts of prop wash. This reviewer is particularly concerned about this salient point, given that it does not appear that the sensors were mounted above the rotary wing airframes (e.g., Nolan et al., 2018; <https://www.mdpi.com/1424-8220/18/12/4448>).

L95-101, provide some citations for this information please.

L140, I see sensor sampling rates in section 4, but I think these details would be better suited to a prior section. Or maybe even consider a separate section under a heading of 'sensors' where these could be separated from the description of the UAS platforms?

L184, . . .likely caused by farm vehicles. . .

L187, suffered

Figure 1, B. The blue flag waypoints are very hard to see in the image.

Figure 3 legend, make sure to add information that this was from the car mount, approximately 2m AGL, at least as I understand it.

Table 1 is beautiful! This supports the idea of a separate section on just 'sensors',

C2

highlighting this table.

Tables 2,3, and 4 could be combined into a single UAS measurements table, with a platform designation column and a mission column. It would also be nice to have a flight/mission number listed here that would correspond to a labeled dataset. This will make it much easier for other folks to actually use these data.

Tables 5 and 6 could be combined into a single surface measurements table, with just a platform column. It would also be nice to have a sampling period/mission number listed here that would correspond to a labeled dataset. This will make it much easier for other folks to actually use these data.

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