

## ***Interactive comment on “University of Colorado and Black Swift Technologies RPAS-based measurements of the lower atmosphere during LAPSE-RATE” by Gijs de Boer et al.***

### **Anonymous Referee #2**

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#### General comments:

The manuscript provides a concise but comprehensive summary of the measurement priorities and methods adopted by one of the teams participating in the unique LAPSE-RATE measurement campaign. The paper provides informative descriptions of the mission (sensing) and operational (performance) capabilities of four remotely piloted aircraft that were used to sample the lower atmosphere over an extended period, targeting a number of science goals enumerated in the text. The paper closes with an overview of sampling times and locations and a summary plot of the data that were collected.

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#### Specific comments:

Following are a few comments that may help improve the paper's impact.

While measurement data are shown in Figure 7, their presentation and analysis is not a primary focus of the paper, so the title is a little bit misleading. Perhaps the title should emphasize "measurement priorities and methods" rather than simply "measurements."

Table 1 provides a helpful summary of mission (sensing) capabilities. It might be nice to also include a table of operational (performance) capabilities and outcomes (e.g., campaign flight hours, air-relative distance traveled, etc) as well as tasking (e.g., in the context of the measurement priorities listed in Lines 71-75). Much of this information is already provided in the narrative, but a table would facilitate comparisons between platforms.

In providing attribution to Google maps in the captions for Figures 3-6, you might briefly note whether the imagery is consistent with the state of the terrain at the time of the experiments. (E.g., were crops growing as indicated? What was their state of maturity?) This information may be important to someone using the data.

Figure 7 is a nice summary of key data that were collected. The given format is very sensible, with each column depicting a particular measurement variable on a common scale, each row representing the measurements obtained from a given aircraft, and the color map representing the time during the campaign when the data were collected. I might also suggest adopting the same altitude scale for all of the plots, regardless of the platform. This will compress the data for all but the S1, and will generate a lot of white space, but it will also make the rows of data more directly comparable. For example, one would expect to see a fairly consistent lapse rate slope in the temperature data.

#### Technical corrections:

Line 171: An editorial note ("cite papers") still appears in the manuscript.

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