This paper describes at an in-depth technical level the development of a low-cost radiosonde built using standard off the shelve parts. The low-cost values of such a system is one novel point. The second is the potential to have several in the air at a time allowing a swarm approach to measurements in the troposphere. However the scientific reward of this is poorly demonstrated.

Thank you very much for your time and efforts reviewing this study, we modified our paper according to your following comments.

The technical description is quite thorough and in depth and should be simplified through the use of tables and using more general descriptions of the components used so that an audience from a wide community can understand the description

Thank you for the comment. We slightly simplified section 2, although we think the details are important and serve as a reference for future research.

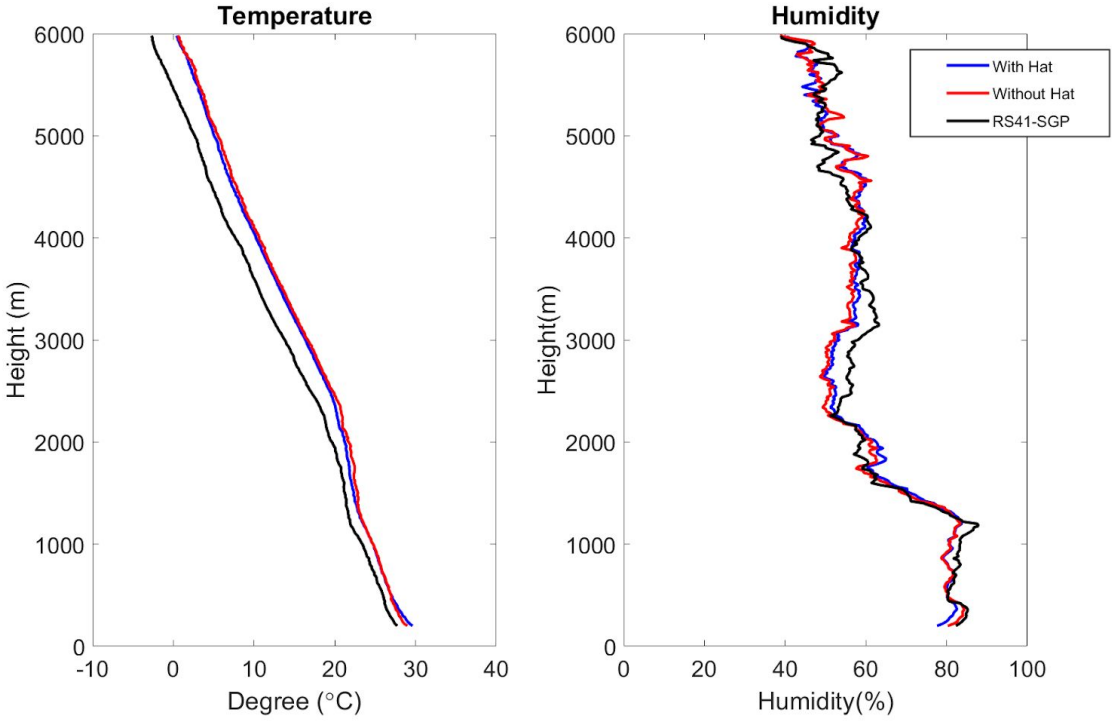
In Section 3 this can be better presented in terms of figures used. It appears the authors have got all the data they need to undertake a comprehensive comparison and they've missed the mark a bit. Firstly, I'd like to see a plot of vertical profiles of temperature and RH (Use RH and avoid Dewpoint as Dewpoint is derived from the RH on the RS41) from both the Storm tracker and RS41 on the same plot for day / night cases and with and without the protective screen. Avoid using a skew-T diagram as these are a function of pressure. Instead use the GPS height from both the storm tracker and RS41. They have similar Ublox systems within once you take the covers off.

Thank you for the suggestions, we rewrote and reorganized section 3 as follows according to the comments from you and another reviewer, Dr. Masatomo Fujiwara.

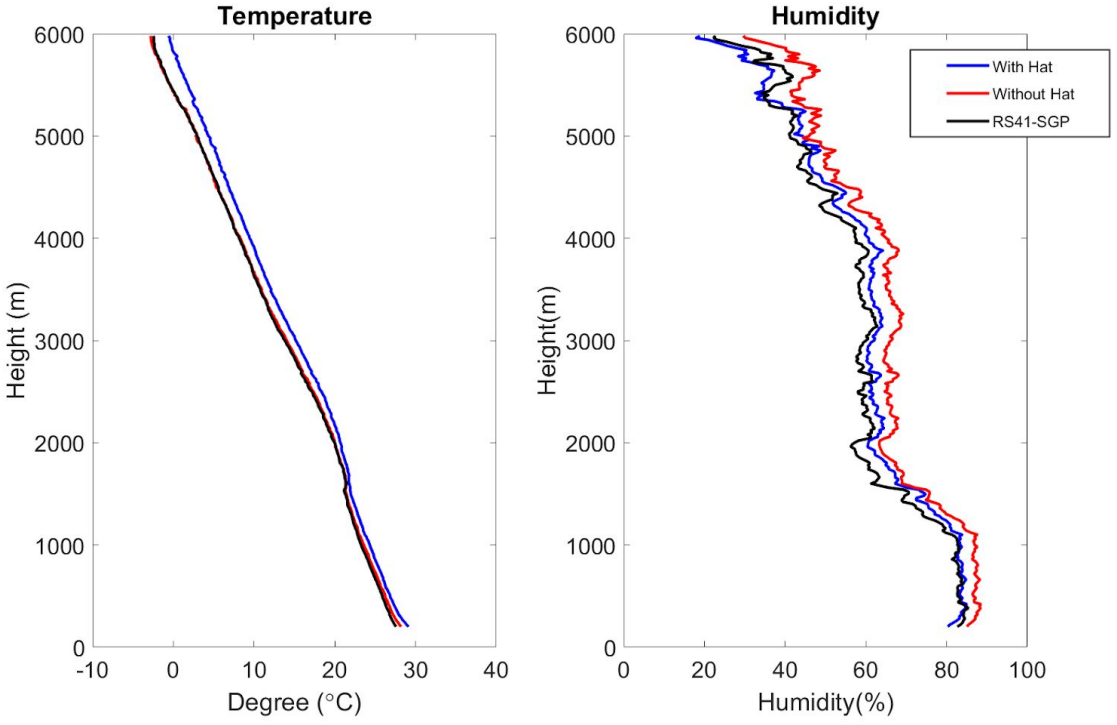
First, the discussions for the trial experiment in December 2017 are removed in the updated manuscript. It is because we found the results consistent with those in the second trial which consists of additional comparison w/wo the hat. In the updated manuscript, we focus on the analyses for the second trial experiment in July 2018.

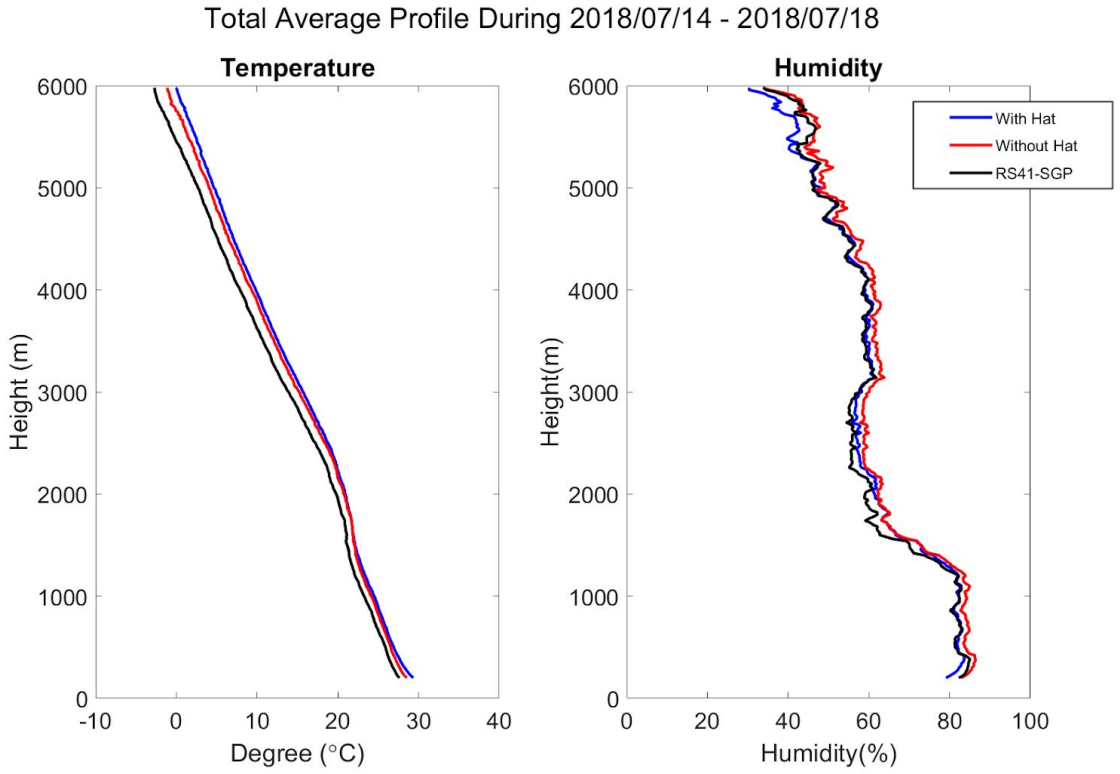
Next, we now have all the Vaisala RS41-SGP and the Storm Tracker data at the same time coordinate. After calculating the means and standard deviations within the same height range, we show the vertical profiles of T and RH differences (Day, Night-time, and total) in the updated Figure 10. And the averaged measurements are shown in the following figures (Fig1,2,3).

DayTime Average Profile During 2018/07/14 - 2018/07/18



NightTime Average Profile During 2018/07/14 - 2018/07/18





We still keep the skew-T diagram in the updated Figure 9 as a reference for the average weather condition during the experiment.

Also, the standard RS41 does not contain a pressure sensor. It back infers pressure from GPS using the hydrostatic balance. Unless it is an RS41 GP which does contain a pressure sensor, probably worth checking when undertaking a comparison with the BMP280.

Thank you. We used the Vaisala RS41-SGP, as indicated in the paper. In the updated manuscript, we compared the RS41-SGP pressure sensor with the BMP280 in Table 5 along with the discussion in Section 3d.

The histograms are good. However, the real story appears in the profile plots (Fig 10- 13). I'd suggest moving the histograms to a supplementary figure and using the profile plot differences instead.

We modified the section 3 accordingly.

Section 4 is somewhat confusing, when I began reading it I was expecting to see a case study where a swarm of sensors had been launched and a temperature contour map at a given pressure surface would be displayed for a given altitude or pressure. Or a height time temperature contour map. However, only the trajectories were plotted. I feel to highlight the novelty of this work a preliminary result showing either temperature, humidity or wind component as a function of height or area is needed.

Following on from this Section 4 seemed to also be the conclusions. Section 4 and the conclusions need to be in two separate sections.

Section 4 is now modified as suggested. In addition to the intercomparison between the Storm Tracker and the Vaisala RS41-SGP, the experiments in Wu-Chi was aimed to explore the variation of the PBL. We added a paragraph in section 4 discussing this.

Nevertheless, the results are so far preliminary, more case studies using the Storm Tracker are currently underway, especially during the Taipei Summer Storm Experiment (TASSE) in 2018–2019. In a word, we focus on the overall performance of the Storm Tracker in this manuscript.

There are numerous typos and grammatical errors that also need rectifying some are highlighted below:

Line 30 and throughout: Strom should be Storm

Corrected.

Line 49-55: I suggest making a table here with the various radiosondes and their weights and potential cost per sonde.

Thank you for the comment, although we want to present the table with various radiosondes, most manufacturers would not publicly share their unit cost. Moreover, bulk buying will impact the cost per radiosondes a lot, so we couldn't present such a table.

Lines 52-55: You need to be clearer here about what kind of field campaigns you are on about. What are you trying to measure that would make a normal radiosonde not fit for the job both logistically and financially? (I think you make a case for it further down in this section. But I'd bring that argument earlier on)

Thank you for the comment, we clarified in the discussion.

Line 82: MCU , I guess you mean Micro Control Unit. You need to define this.

Updated.

Line 92: Remove the from before TE

Updated.

Line 102-104: I'm not familiar with the LORA technology but saying thins like setting is 7 for spreading factor and 4/5 for code rate, will not yield any useful information to the general reader. Either describe in everyday terms what these settings mean or relegate to supplementary material. Do however included the baud rate

Thank you for the comments, the spreading factor(SF) along with code rate(CR) defines the baud rate of LoRa. Unlike Narrow Frequency Modulation or other similar modulation which may only need to indicate the bandwidth and baud rate, LoRa modulation is able to do a

tradeoff between the baud rate and the required SNR to receive the signal, which is indicated using SF. Simply write down the baud rate of the resulting configuration will miss a lot of details about the system's immunity to the noise. We added the discussion about the un-common settings for LoRa in section 2 according to your comments.

Line 117-129: Figure 1b shows a nice block diagram. I advise to rewrite this paragraph stepping through and describing how the received signal is parsed through the system. At each stage describe in simple terms what each part of the circuit does. For example, say the main CPU is a MT7688 (The configuration is not that important)

Thank you for the comment, we updated the discussion herein.

Line 151: attached

Updated.

Reference:

https://www.vaisala.com/sites/default/files/documents/WEA-MET-RS41SGP-Datasheet-B211444EN.pdf