

Interactive comment on “Quantifying Hail Size Distributions from the Sky: Application of Drone Aerial Photogrammetry” by J. S. Soderholm et al.

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Dear authors,

your manuscript presents a novelty in hail size research, taking profit of capabilities of drones and photography treatment techniques. Having in mind the review criteria of the journal (https://www.atmospheric-measurement-techniques.net/peer_review/review_criteria.html), I'm considering that it has an excellent scientific significance and good scientific and presentation qualities.

Besides, the paper answers positively to all the questions made in the same web.

However, I think that there are some points that you must solve before the acceptance of the paper.

C1

- There are some typos: L1: "HailPixel." (the dot must be placed after the ") L6 of the page 3: ((Fig. 1a) - remove one (

- I think that your technique can be useful for more aspects that the cited in the text: for instance, for identifying the whole area affected by hail. I understand that your technique can discriminate between hail/non-hail pixels and then, you can delimitate the hailpath. In the same way, do you think that this is applicable in real-time? If your answer is positive, explain it in the text, because this could help in many fields, in those areas commonly affected by hail events, such identification of damaged agriculture production or for insurance interests, among others.

- When you introduce hail-pads, you forget to mention automatic hail-pads (see, e.g. Martin Löffler-Mang, Dominik Schön, Markus Landry, Characteristics of a new automatic hail recorder, Atmospheric Research, V. 100, Issue 4, 2011, Pp. 439-446, ISSN 0169-8095, <https://doi.org/10.1016/j.atmosres.2010.10.026>.)

- In data and approach, please provide numbers (L25 pg 2): which size and density can be considered as thresholds?

- Where is the hail-pad used for the comparison located? You should indicate in a figure

- It results difficult to me understand which is the final size of the pixel, the one you use in fig 2c

- Those parts of the manuscript that are not referring to your work should be moved to the introduction, where the state-of-art is presented: e.g. L 1-5 of page 4, or some previous results used in your discussion.

- León is not placed in France (L18 Page 5)

And some final considerations:

- I think that you could do an effort and give more applicabilities to your research, such

C2

the cited previously in my report, including some references about this point (Botzen, W. J. W., Bouwer, L. M., & Van den Bergh, J. C. J. M. (2010). Climate change and hailstorm damage: Empirical evidence and implications for agriculture and insurance. *Resource and Energy Economics*, 32(3), 341-362. // Changnon, S. A., Changnon, D., Fosse, E. R., Hoganson, D. C., Roth Sr, R. J., & Totsch, J. M. (1997). Effects of recent weather extremes on the insurance industry: major implications for the atmospheric sciences. *Bulletin of the American Meteorological Society*, 78(3), 425-436. // Sánchez, J. L., Fraile, R., De La Madrid, J. L., De La Fuente, M. T., Rodríguez, P., & Castro, A. (1996). Crop damage: The hail size factor. *Journal of Applied Meteorology*, 35(9), 1535-1541. // Hohl, R., Schiesser, H. H., & Aller, D. (2002). Hailfall: the relationship between radar-derived hail kinetic energy and hail damage to buildings. *Atmospheric Research*, 63(3-4), 177-207.)

- In my opinion, you need to separate more clearly the part of your work from other previous techniques, and, besides, to present, maybe in a table, the technical characteristics of the analyzed imagery

- In the summary, you have to emphasize the advantages (also the disadvantages) of your technique in front of the current ones. In fact, you are saying that the hail distribution presented in your study is comparable with others, but in my opinion is clearly more accurated. You have to give weight to this point.

Best regards

Interactive comment on *Atmos. Meas. Tech. Discuss.*, doi:10.5194/amt-2019-281, 2019.