

Response to reviewers comments

EGUSPHERE-2023-2598 | Research article

Modelling crop hail damage footprints with single-polarization radar: The roles of spatial resolution, hail intensity, and cropland density

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We thank the reviewers for their positive second evaluation of our manuscript. Below we reply to the remaining comments of Reviewer 1 in blue

I am satisfied that the authors have address my previous comments. I particularly appreciated their detailed response to my question about the use of the Pierce skill score and will be seeking out the Ebert and Milne paper that they referenced as a result. I have a few additional very minor corrections/suggestions, mostly related to typos that I missed last time or that have been introduced with the revisions. Once these are fixed, I believe the paper will be ready for publication.

Thanks for the positive evaluation and again the careful reading and finding of typos etc.

Minor Comments:

L1: Suggest changing "remains" to "represents" (even with the best forecasts and preventative measures, hail is likely to always be a threat to agriculture).
L5: I would argue that you can remove "used as a proxy for hail intensity".
L9: Suggest changing "a lower model resolution" to "decreasing resolution below 1 km" to make it clear that the trend applies from 1 km resolution and not just for resolutions below 8 km.
L38: I would suggest moving this comment about MESH to a footnote. At the very least you need a comma before the "and" as the sentence currently states that MESHS is different from MESH and POH (which is true, but not what you're trying to say).

Thanks for these suggestions. They were adopted accordingly.

L75: Extra close bracket at the end of the sentence.

Thanks for this remark. However, we did not see the extra close bracket here.

L85: I would just say "How sensitive is the model performance to cropland density?" You can detail how cropland density is measured in the methods section.
L173: I don't think you need to repeat here the list of crops that make up the field crops category.
L194–195: Suggest deleting the text in parentheses on these lines.

L236: Change "examples" to "example" (only the second example has a higher POD).
L269: "dependent on the resolution"
L346: I think you either need to delete "area" or change "area" to "are" and delete "occur".
L353: Suggest deleting "eventually".
L373: "as an alternative"
L389: "and the minimum number of fields used to define the exposure"
L394: Not sure why you've used square brackets rather than parentheses here.
L412: Extra close bracket and full stop.
L415: Missing space between "mm" and "underpredicts".
L421–422: Rather than "cropland or, more generally, the observation network", you could just say "the verification data".
L428–429: Typo in your GitHub link: it should be "CLIMADA-project".
L430: "open-source and open-access"

Thanks for these suggestions which were adopted accordingly. A

Fig. 3: Did you mean to use a filled cross for FAR at 1 km resolution (consistent with the open cross for FAR at 8 km resolution)? Also, I'm not sure what "HK" indicates in the caption. Maybe a typo? The same comments apply to Fig. 4.

Thanks for this remark, now the cross is better visible and HK has been removed from the caption in both Fig. 3 and Fig 4.

Fig. 5: You need to specify in the caption what resolution is being used for field crops and grapevine. Also, you say that "the total number of predictions summed over all thresholds is indicated at the top of each panel", but this doesn't make sense. Why would you sum predictions over all thresholds? In any case, I don't think this is what is shown (that number would be a lot higher). I think n is simply the total number of hail predictions (i.e., the sum of hits and false alarms).

Thanks for noting this. Indeed, the figure caption was not clear. Also the secondary vertical axis on the right was wrongly labelled. This is now corrected and n is the total number of hail predictions for a MESHS threshold of 20 mm.