

Author response to round 2 of reviews (minor revisions) of EGUSPHERE-2024-2798

Invited perspectives: Thunderstorm Intensification from Mountains to Plains

We thank the reviewer for taking another thorough look at the manuscript and for these final improvements.

I thank the authors for taking my suggestions and comments into account. Only minor comments remain (line numbers refer to the tracked changes document):

1. On line 286 the authors say severe convective storms are "now dominating" global insured loss from natural hazards. The report cited shows an earthquake had the highest costs 2023 so the sentence should be rephrased.

We rephrased the part to "...are one of the dominating drivers of global insured loss from natural catastrophes..."

2. Line 416: I'm not convinced the evidence for hail is as clear cut as made out here, since increasing CAPE does not always indicate increases in hail at the surface. I would suggest leaving the statement at increases in severe storm environments.

We removed the specific mention of hail. It now reads:

"In its Sixth Assessment Report the Intergovernmental Panel on Climate Change (IPCC) states that climate models consistently project environmental changes that would likely lead to an increase in the frequency and intensity of severe thunderstorms."

3. Line 418: Suggest "One reason" is replaced with "One reason for the high uncertainty".

Done

4. Line 501: EarthCare requires a reference.

Agreed, we added the summary of Wehr et al. (2023).

Wehr, T., Kubota, T., Tzeremes, G., Wallace, K., Nakatsuka, H., Ohno, Y., ... Bernaerts, D. (2023). The EarthCARE mission - science and system overview. Atmospheric Measurement Techniques, 16(15), 3581–3608. <https://doi.org/10.5194/amt-16-3581-2023>

5. Figure 5: The different shadings of grey should be explained in the caption. For example, I don't know why broader applications are listed within a box but reanalysis and km-scale modelling get their own boxes.

We clarified that the dark grey boxes correspond to the research subjects and the light grey ones to datasets. We also split the grey boxes to be consistent.

6. The list of research questions starting around line 570 includes research topic numbers (RTs) from 1 to 8, whereas the topic descriptions are numbered from 2.1 to 2.8. For consistency the numbering should be the same.

Agreed, thanks.

7. Line 615: This sentence seems a little lost and should be added to a paragraph. Same for the sentences on lines 643 and 656.

Thanks for pointing out this formatting error. We deleted the line break.

8. Line 626 and following: "ROIs" should include an s when referred to in the plural, for clarity.

Added.

9. Line 650: Remove unnecessary capitalisation on climatology and radar.

Done, thank you.