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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "An 18-year climatology of derechos in Germany" *by* Christoph P. Gatzen et al.

Christoph P. Gatzen et al.

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We thank the reviewer for his/her suggestions on our original submission, which lead to an improved revised manuscript. Please find our detailed replies to your comments below.

Specific comment #1 from referee 2

Minor Points: 3rd page – line22: Although it is an obvious classification (and authors included later in the manuscript) I suggest to authors add at this point the monthly reference period in order to determine the "warm-season" and "cold-season " types (e.g. April to Sept and Oct to Mar, respectively).

Author's response

The occurrence of warm-season and cold-season type events is not limited to the defining seasons (e.g., a cold-season type event can occur in May). Please refer to e.g. page 9, lines 21-22: "The cold-season cluster contains 16 of 17 derechos that occurred between October and April plus the one on 20 May 2006."

Author's changes in manuscript

No changes made to the manuscript.

Specific comment #2 from referee 2

4th page – line 24-25: I recommend to authors to add a sentence regarding the wind surface measurements and clarify that all data were based on 10m or if there were some station with lower measurements (e.g. 3 or 7m) those data were referenced to 10m measurements.

Author's response

We agree with this suggestion. Since there can be indeed differences in the height of surface wind measurements that we do not give, we have added this information in the data and methods section.

Author's changes in manuscript

Page 8, lines 2-6 (data and methods) "... we computed 0–1-km vertical wind shear as the magnitude of the vector difference between the wind at 1 km altitude above ground level and the wind closest to the ground that is always referenced to the 10-m (or surface) wind regardless of the exact measurement height. Similarly, we computed the 0–3 and 0–6-km vertical wind shear by the magnitude of the vector difference between the winds at 3 and 6 km altitude above ground level and the surface. We linearly interpolated the wind vectors at 1, 3, and 6 km based in the closest wind measurements near the corresponding heights."

Specific comment #3 from referee 2

Figures 1-6: I recommend to authors to include also the reference period of study.

Author's response

Thank you, we included the reference period as requested.

Author's changes in manuscript

We included the reference period in the figures as requested.

Specific comment #4 from referee 2

Figure 6: I suggest to authors to join the a and b plots regardless the huge difference of scale.

Author's response

Thank you, we changed the figure accordingly: we now display CAPE of the two types in one plot, but in logarithmic scale.

Author's changes in manuscript

We now display CAPE of the two types in one plot in figure 6, but in logarithmic scale.

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