

Interactive comment on “Ambient conditions prevailing during hail events in central Europe” by Michael Kunz et al.

Michael Kunz et al.

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The manuscript is well-written, correctly structured and methodologically sound. It lies within the scope of Natural Hazards and Earth System Sciences, as it considers the detection and modelling of a natural hazard (hail), with severe socioeconomic impacts. The authors present an empirical study with clear objectives, which involve the association of Severe Convective Storms (SCS) to fronts, the differences in the characteristics of frontal SCS differ to the non-frontal ones, the effect of environmental conditions to hail diameter and track lengths and whether the propagation direction of hailstorms is associated to hail size. Overall, the manuscript is of high quality and should be considered for publication in Natural Hazards and Earth System Sciences with few minor suggestions for revision presented below.

C1

‡ We thank the reviewer very much for the time taken to review our manuscript and for the helpful and constructive comments. We are pleased that the reviewer approves the manuscript to be of high quality and well written. In preparing a revised manuscript, we will address all minor suggestions.

Figure 1: Consider splitting the Figure to two, as in Figure 4. In this manner, the spatial patterns in Germany will be easier to detect and present (color scale).

‡ The reviewer is right that the spatial pattern in Germany is difficult to detect. We will modify the color scale, but use the same scale for the entire area to allow direct comparison.

L298: Seeing Figure 5, one might think 50-150 km class should be used instead. Is there another reason for choosing a 50-100 km class?

‡ I fully agree, but the thresholds were set so that each sample contains at least 35 events. The classes as proposed would result in too small sample sizes for the long tracks (27 / 29 / 35 events for $D < 3$ / 3-4 / ≥ 5 cm instead of 64 / 72 / 50 events). We will add a comment.

L353-354: It would be less confusing to define the classes as $D < 3$ cm, $D < 75$ km and $D > 3$ cm, $D > 75$ km

‡ We will consider this edit.

L356, L370: Figures 10 and 11 are the other way around.

‡ Thanks (this was a Latex compiler error)

L365-382: Perhaps consider removing this section. It does not contribute much to the findings and overall discussion and could be misleading. Statistical evaluation needs to be addressed also in terms of uncertainty analysis, which is not quantitatively presented in the manuscript.

‡ We will delete L378-382 at this paragraph do not give additional information. The reviewer is right, we did not consider uncertainty analysis, mainly because of the unreported HS events that are unknown.

C2

