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Discussions

Interactive comment on "Little evidence for super Clausius–Clapeyron scaling of intense rainstorm properties with air temperature" *by* P. Molnar et al.

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I have a few questions/ remarks regarding this paper.

This article leans heavily on statistical arguments (e.g. l 5-12, pg 8931) in explaining the boxplot results (figs 2 and 3). How do the authors relate this to recent work (Loriaux et al., 2013) which supports super-CC scaling as a robust feature of extreme convective precipitation rather than a storm-type mixing effect?

Currently, no results are presented to clearly back up the claim that the slope of the full set is inflated by storm cloud mixing. In fact, one could also argue that separating the data into lightning (heavy events, high T) and lightning-free cases (weaker events, low T), one skews the slope towards weaker values: Comparing the lightning subset to the

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full sample, assuming the actual slope would be super-CC, then at lower temps heavy precip will be given too much weight, leading to overestimated intensities at low temperatures, but a fairly accurate representation of the intensities at high temperatures. This would result in a weaker slope for the lightning subset than the full sample. Similarly, for the lightning-free subset, the intensities at low temperatures would be fairly accurate, while the intensities at high temperatures would be underestimated, also leading to a weaker slope than the slope found for the full set. Perhaps adding some frequency distributions of e.g. lightning occurrence with T would further back up these claims.

Since the authors do notice the effect of moisture availability, which is especially clear at higher temperatures, why not use near-surface humidity rather than temperature? The reasoning in paragraph 3.3 is not completely clear, and might also benefit from some results.

References: Loriaux, J. M., Lenderink, G., De Roode, S. R., & Siebesma, A. P. (2013). Understanding convective extreme precipitation scaling using observations and an entraining plume model. Journal of the atmospheric sciences, 70(11), 3641-3655.

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