

Review of: "Multi-day hail clusters and isolated hail days in Switzerland – large-scale flow conditions and precursors", by Barras et al.

Summary

This study documents and compares the frequency of multi-day hail clusters versus isolated hail days in Switzerland. It shows that multi-day clusters are relatively common during summer, and that conditions relating to large, longwave troughs favor their occurrence.

I think this is solid research, and a well-designed and well-written paper. My comments are relatively minor, and mostly regard clarifications.

Comments

Figure 1: some lat/lon information on this figure would be useful (it's not clear to me what the km values relate to

line 92: I assume that such a calculation of BWS is standard practice for this part of the world? Because of the complex topography, does using the 10 m winds i/o 850 hPa lead to excessively noisy BWS analyses?

line 105: Just to confirm that I understand this: the percentiles here are based on the set of daily areas over which $POH > 80\%$?

line 108: This is a bit confusing/ I assume that 'nonhail days' here refers to days *not* identified by the POH footprint criteria? (rather than an "actual" nonhail day?) I'm trying to reconcile >5 car insurance hail losses in absence of hail.

line 118: While I appreciate the value in following the published approach of other researchers, I think it's worth giving a very brief justification (meteorological or otherwise) on the significance of 5-day periods. To be clear, I think I can infer the justification, and I don't have an issue with this period of consideration, but it is fair to ask why 5 is preferable.

line 150: s/b 'resampled'

line 363: Using your analysis, you could also express this in terms of a probability: Given a hail day, there is an xx % probability that this day is part of a multi-day cluster.

line 388 (future research): One of the cited North American studies speculated that upscale feedbacks driven by the diabatic heating of deep convection may contribute to the consecutive days of hazardous convection. Not knowing the total size and duration of the convective storms contributing to clustering, it's difficult to know whether this idea has any relevance to Switzerland, but it's perhaps something to consider. If relevant,

this would have implications, for example, on the necessary approaches to climate modeling (resolution, global versus limited-area, convective parameterizations, etc.).