

## ***Interactive comment on “Characterising the relationship between weather extremes in Europe and synoptic circulation features” by S. Pfahl***

**Anonymous Referee #3**

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In this manuscript the conditional frequency of cyclones and blocking during extreme weather events at different locations in Europe has been used to characterise the synoptic-scale circulation conditions associated with precipitation, wind gust and temperature extremes. A target region is defined covering large parts of central, western and southern (mostly Continental) Europe, and at each grid point within this target region, weather extremes are defined as the 1% most extreme six-hourly events with respect to the total 21 yr climatology (1989-2009 ERA Interim) at the respective location. This corresponds to the selection of all six-hourly intervals above the 99th (or below the 1st) local percentile, yielding 306 events per grid point. The manuscript is well written, well-structured and organized, well documented and reinforces other previous results on an elegantly way. It also presents evidence of some well-known features, yet difficult

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to show systematically. The paper provides relevant discussion and fits in the scope of the NHESS journal, so in my opinion it is worth being published in this journal after addressing the following points: - How relevant is the choice of the 99th (or the 1st) local percentile to the final results? Would the main results be consistent if the author would choose another threshold? Which threshold would (eventually) be the frontier? - How is the spatial homogeneity of these extreme events analysed? Over each of the wide regions defined in Figure 3 there are grid points where 100 mm would be considered an extreme event and others where it would not. How is this issue relevant for the final results? Would the results be spatially skewed due to this fact?

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