**Natural Hazards
and Earth System
Sciences**

Open Access

Discussions

Interactive comment on "The role of European windstorm clustering for extreme seasonal losses as determined from a high resolution climate model" *by* Matthew D. K. Priestley et al.

Anonymous Referee #1

Received and published: 15 July 2018

This paper presents an analysis of temporal clustering of extratropical cyclones in the North Atlantic and the associated windstorm losses over central Europe. The studies shows the seasonally aggregated losses are substantially underestimated if temporal clustering is not taken into consideration. Also the relative contribution of the cyclone resulting in the highest losses per season to the overall seasonal losses is investigated. This contribution is very variable and ranges between 25 to 50%. The study makes use of decadal hindcasts to analyze hundreds of years of present day simulations and statistics based on this large sample are very robust. The quality of the text, the figures and the science is high. The only point that should be scrutinized is the GPD fit to the ERA-interim data. This analysis is not convincing and not necessary to support the

main points of the paper.

Minor points: Title: Suggest to add that the clustering refers to clustering in time P2L7 The most severe seasons in terms of the total windstorm loss P2L31 these events reference unclear P3L4/5 incomplete sentence P3l18 The question is incomplete contributes more than what? P5l25 Why is this threshold sensible? Why not set these grid-points to NaN? P6L8 Why a 72 hour threshold? P6 L36ff What is the base time for the analysis? Seasons, months? P7l16 How can this proportion become negative? Should it not be always positive? P8L15ff How do you decluster the extremes to use only independent values for the GPD estimate, especially as your time-series are clustered in time. See e.g. Ferro and Segers https://rss.onlinelibrary.wiley.com/doi/abs/10.1111/1467-9868.00401 P8L15 The GPD fit to ERA-interim seems a bit of a coup de main to me, especially considering that you are bias correcting the data beforehand thereby potentially introducing substantial uncertainty. Also the 70th percentile threshold for the fitting seems to be extremely low. Did you test this threshold? I would recommend fitting the GPD only to the model data, the results are convincing enough (even more convincing) without the this analysis. P8L27 well please quantify P9L19 Please define clustering for the readers not familiar with Priestley et al 2017 P9L30 slight please quantify P10L18 "this is balanced" be very careful, as soon as the exposure comes into play, the exact location matters a lot and you might introduce substantial artifacts. Are your results qualitatively independent from this bias correction? P11L24 increase between what and what? P11l33 marginally lower as would be expected . . . -> I do not understand this sentence P13l2 the 3 year P14l1 suggest: the importance of temporal clustering on seasonal time-scales P14l28ff This sentence is unclear Figure 4: what are the units of SSI? What happens in the eastern Mediterranean? Figure 5a: Please add units