

June 27, 2020

## REVIEW COMMENTS

*Bonnafeous and Lall: Space-time clustering of climate extremes amplify global climate impacts, leading to fat-tailed risk* (nhess-2019-405)

This study provides an innovative approach to the joint spatio-temporal analysis of climatic extremes and place-based sectoral commodities and risk exposure.

### Minor Comments

- (Page 5, Lines 5–10): The background information regarding the ores and crops is provided in several places. A subsection devoted to these items with one or two of the Figures S1-6 moved to the main manuscript would improve readability and understanding of the data used.
- (Page 6, Line 5): It would be helpful to include a detailed explanation of the probability distribution used, and some rationale regarding its appropriateness in the context of climatic data, as well as any issues related to nonstationarity (and potential concern regarding misspecification).
- The authors state clearly the choice of  $\tau = 0.1$  &  $0.9$ , and that similar analysis can be done for other thresholds or spatially varying thresholds. In my opinion, this should be reiterated in the Conclusions section; in other words, what would a full-fledged dynamical risk system implementation look like (i.e., one that takes into account the spatio-temporal climate variability, resource distribution, infrastructure, adaptive capacity)?
- No details of the density estimation (and simulation) are provided.

### Other comments

- Figure 1: Suggest adding axis labels. Also, may be worth using the same x- and y- axis ranges.
- Figure 1 caption, typo: "different"