

## ***Interactive comment on “Spatial extremes modeling applied to extreme precipitation data in the state of Paraná” by R. A. Olinda et al.***

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### General comments

The manuscript describes the successful application of an already known and tested method. An interesting benefit is the application of max-stable process models in a case study with rather sparse data, although this is not the focus of the study. In general, the approach and the application of the method in a case study are of relevance, but its explanation is rather poor and research is not well placed into a wider (hydrological) context. The procedure and the applied method are not well explained; therefore some steps are incomprehensible. The linkage between the applied method and some mentioned issues (e.g. climate change, climate change impacts on agriculture, risk,

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risk management) is unclear and appears artificial.

### Specific comments

12734:10: A monthly maximum out of precipitation data with a daily resolution does not necessarily have a severe impact on the hydrological system. There is a gap between the introduction topics (catastrophic events, damages) and the actually used data.

12734:22 Ribatet et al. 2011 references an R package; as far as I know they don't assess the applicability of mathematical models.

12735:12: "In many regions of Brazil, there has been an increase in the frequency of extreme events." Please specify this statement with some references.

12735:19: Firstly, the link to climate change is not as clear as it is stated here. Please give some references. Secondly, the article is about the applied method and has no (or sparse) links to climate change.

12735:23: "the research aims at: [...] (3) and quantifying, through maps, the risks associated with extreme weather data [...]". Extreme precipitation and risk are not the same. There is nothing said about risk in this manuscript, and the maps do not show risks.

12742:10 Please separate theory and case study

12744:7 Please define "mesoregion"

12748:14 The sample is influenced by ENSO, which makes the system obviously non-stationary. What implications does this have for the applied models?

12750:9 Please give some relevant references for these "many works"

Fig 5: A table would be better

### Technical corrections

Various typos, grammatical errors and inconsistencies.

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