

Interactive comment on “Probabilistic modelling of the dependence between rainfed crops and drought hazard” by Andreia F. S. Ribeiro et al.

Anonymous Referee #2

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General comments: The topic of this study is highly relevant, as the Mediterranean area is in need of strategies to cope with weather-related risks, especially drought. The effort to characterize the drought –crop yield losses are therefore valuable. However, in my view, there is a major issue in this manuscript that should be addressed before publication. This is the lack of generalized conclusions. Analyses are sound but the time and spatial extent and resolution of the data make difficult to extract general conclusions (I agree with Referee 1 on this issue). Even though, the paper would improve a lot if the authors focus on the findings to characterize risk related to drought on these Mediterranean conditions. Findings should be clearly formulated here in a way that the reader can understand what is the added value of the results, beyond the descriptive analysis of the plots at these specific areas.

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Specific comments:

- Abstract: the statement “the estimated conditional probabilities suggest that the likelihood of crop-loss under dry conditions is higher than under non-drought conditions” is pretty obvious for Mediterranean conditions and should not be selected as a main result of the study in the abstract. Please, reformulate to stress the added value of the findings.
- Pag. 2 line 3- This is not recent, It has been like this for decades now, as it is main concern in Mediterranean systems
- Pag. 3 line 6- Referred to which period?
- Pag. 2 lines 14-15- Given that there are many studies using this methodology at the global scale, I would specify here the issues and flaws, but also the advantages, detected by the authors to enrich the discussion.
- Pag. 4 line 6- Somewhere in the paper the low resolution (0.5°) of these data and its implications for analysis accuracy should be discussed and handled. Actually, the resolution used is not clear, as in line 19 4 km is mentioned. Please clarify.
- Pag. 4, line 13- With data from which data source? Please justify with Penman-FAO, in principle more accurate methods, is not used.
- Pag. 4 line 29- More details should be provided on these models. This paper should be understandable without reading Ribeiro et al. (2018).
- Pag. 5 lines 2-6- This information is maybe more appropriate for the introduction. The rest of the section until 2.2 is not clear if it is meant as a summary of the data from Ribeiro et al. (2018) or it is new material with a preliminary analysis of data; if this is the case they should be in the result section.
- Section 3.1. More examples for interpreting results in terms of consequences for crop losses-drought weather relationships

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- Section3.2. Please see my general comments. Maybe separating between results and discussion sections could help. Alternatively, a paragraph of descriptive results should be followed by an interpretation and then extracting generalized statements when possible. Part of this is done in the conclusions section (see below).

- Conclusions: In my view, these are not really conclusions but a summary of the study or of the discussion. I would recommend addressing the discussion separately, and then to reduce and focus the conclusions section.

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