

Interactive comment on “Risk of crop failure due to compound dry and hot extremes estimated with nested copulas” by Andreia Filipa Silva Ribeiro et al.

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The three reviewers agree on the clear purpose and structure of the manuscript and are all supportive to publication of this manuscript subject to minor edits. Some refer to justification of (implicit) choices made, some ask for some extra clarification. I would recommend to reply to all review comments that are raised. For me the most significant comments are:

Additional justification regarding:

- The choice of the 3-month averaging window for the meteorological quantities

C1

- The processing of the negative dependence (why not use a rotated copula, as suggested by a reviewer)
- Availability of the code (and data if that is open)

Some further explanation concerning:

- The copula parameter {theta}
- The implication of C being lower than the AIC
- The choice of the marginals in section 2.3
- The reconstruction of the correlation between yield and temperature for wheat 2
- The physical interpretation, not only of the notion that drought and heat alone can give stronger effects than their combination, but in general sense: why would the combination of environmental drivers lead to stronger yield reductions? Is this physiologically explainable?

Some editing would be recommended regarding:

- The renaming of “cluster” to “region” (as “cluster” does not have a strong geographical association)
- The labeling of heat percentiles in Figure 7.

With kind regards