

Interactive comment on “Crops’ sensitivity and adaptive capacity to drought occurrence” by Catarina Alonso et al.

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We would like to thank C. S. Murthy for his careful review and constructive feedback, and also for the opportunity to engage in a stimulating discussion. We truly believe that this process will enhance and clarify the paper’s content. A point-by-point response will follow.

C. S. Murthy: Title of the paper covers only sensitivity and adaptive capacity aspects although the research work includes exposure aspect also! Any specific reason?

AR: In both methods used in this study, Exposure, Sensitivity and Adaptability have the

C1

same contribution to the final manuscript. Therefore, the title was changed to include the Exposure component:

“Crops’ exposure, sensitivity and adaptive capacity to drought occurrence”

C. S. Murthy: The study has compared two methods of computing weights generation for the input indicators namely Principal Component Analysis (PCA) and Categorical method (as named by Authors). It is not categorical method – it is Variance method. It is also a statistical method and not a subjective and non-automatic method, as mentioned by the Authors. It needs to be mentioned that in both the methods weights are data driven. PCA adopts a linear approach for weights generations. Detailed information on these two methods needs to be furnished while drawing any conclusion.

AR: We understand the reviewer concern. However, we would like to stress that the subjectivity of the method does not rely on the computation of the weights, but it is related with the functional relationships between the indicators and the respective component index, i.e., the sign (positive or negative) of the contribution of each variable must be given according to the a priori knowledge of the variable. In any case, we fully agree with the reviewer and the reference to the Murthy et al. (2015a, b) method as “categorical method” was changed to “variance method” throughout the text.

L-250: “Firstly, the differences in the units of the input indicators were normalized based on the functional relationships between indicators and respective component index (Table 1).”

In the case of the PCA method it is not necessary to choose this sign or to calculate the weights.

C2

C. S. Murthy: Why the input indicator at s.no 14 "Aridity Index" in Table 1 is shown under Adaptive Capacity (AC)? Aridity index signifies exposure to drought. Adaptive Capacity is the inherent strength of the ecosystem to cope with the drought conditions and it is generally represented by static variables.

A.R: The reviewer is completely right, and we would like to thank him for the comment. Therefore, all calculations have been redone to consider this change. In the present form, eight variables were considered in Exposure Component and only two in Adaptive Capacity Component (new Table 1). As a result, all the figures were redone. Particularly, figures 6 and 10 were changed for a better understanding by the reader.

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