



EGUsphere, referee comment RC1  
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## **Comment on egusphere-2022-744**

Anonymous Referee #1

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Referee comment on "Assessing agriculture's vulnerability to drought in European pre-Alpine regions" by Ruth Stephan et al., EGU sphere,  
<https://doi.org/10.5194/egusphere-2022-744-RC1>, 2022

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## **Review of egusphere-2022-744 Assessing agriculture's vulnerability to drought in European pre-Alpine regions** by Stephan et al.

### **Overview**

The manuscript deals with the estimation of drought vulnerability for agricultural activities in pre-Alpine climates. The authors propose a so-called "mixed method" approach which consists in taking several vulnerability factors, normalizing them and making a weighted sum of them to derive an empirical vulnerability index. The approach is "mixed" because the choice of the factors and their weighting (in the "expert weighting" method) take into account expert advice (interviews, questionnaires, ...). Indeed data availability limits significantly the applicability of the approach, as the experts can recommend factors without taking into account the real availability of datasets for the factors.

Overall, the manuscript is well written and methodologically sound. The main issue I see is that the structure of the manuscript needs improvements (in particular the discussion section), as it is not sufficiently concise. An improvement in this sense will increase the potential impact of the manuscript, if published. Hence, I suggest major revisions.

### **Specific comments**

L23-25 - I agree that climate change is an issue. However, I believe that one should

always mention uncertainties of the climate projections which are at the basis the IPCC reports and conclusions (see e.g., <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2017JD027463>, <https://nhess.copernicus.org/articles/20/3057/2020/>)

L204 - Perhaps explain a bit what "political conservative vote" is.

L224 - the factor "distance to large water bodies" may not take into account the presence of water transfers between the bodies. Is this a relevant issue for the area? Perhaps a comment on this could be added, in that case

Sect. 4.1 - The vulnerability factors may be somehow statistically dependent (collinearity). I am thinking, e.g., at soil texture and water holding capacity. A comment on this is desirable. Also, how this can be prevented when involving the experts for suggesting vulnerability factors?

Sect. 5 - Discussion repeats many concepts already presented in methodology and results sections, and thus must be shortened. An important point that could be more discussed is how the approach/results can be somehow extended to other regions with different climate and socio-economic conditions.

### **Minor points**

Equations are in unusual notation: the definition intervals of the variables are mixed with operators. Perhaps separate the two things as commonly done