

Hydrol. Earth Syst. Sci. Discuss., referee comment RC2
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Comment on hess-2021-600

Anonymous Referee #2

Referee comment on "Machine-learning approach to crop yield prediction with the spatial extent of drought" by Vitali Diaz et al., Hydrol. Earth Syst. Sci. Discuss.,
<https://doi.org/10.5194/hess-2021-600-RC2>, 2022

Thank you for this proposal.

Major comment 1: "Machine-learning approach to crop yield prediction with the spatial extent of drought" doesn't exactly reflect the exact object of your work as drought is mainly considered as agricultural drought through the SPEI index (ie the difference between precipitation and evapotranspiration) used as "drought indicator" in your study. Please modify in accordance the paper title: "...with the spatial extent of agricultural drought" and precize your definition of drought in the introduction Section. Please also explain if soil characteristics (structure, nature) and farmer operational practices could be taken into account in the ML approach in the futur and how they could influence the "agricultural drought area" calculation? Please discusse it.

Major comment 2: the correlation analysis seems very tricky and is hard to read. In general the figures are not pleasant and easy to read (Figures 6-7-8-9). There is too much text in the figures and tables.

Minor comment 1: The proposed approach is a large-scale approach is disconnected from the drivers of the local scales of agricultural management (plot, farm or irrigated schemes) and masking the local variability of soil moisture. How does this complex approach provide added value for these local managers? Please discusse it.

Minor comment 2: Up to line 308 there is mention of "drought indicator" without really knowing what it is. Could you move the data section at the beginning of the paper?

Additional comment: The impact of a drought on agriculture cannot be measured by assessing crop yields because it depends on farming practices and cropping systems. In

this approach, the joint result of the agricultural practices currently practiced during a period of plant water stress is evaluated.