



EGUsphere, community comment CC1
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Reply on RC1

Antoine Chambaz

Community comment on "Forecasting the cost of drought events in France by super learning" by Geoffrey Ecoto and Antoine Chambaz, EGU sphere,
<https://doi.org/10.5194/egusphere-2022-541-CC1>, 2022

We thank the reviewer for their report.

- **1) L7-L8- the statements need to be cited.**

We rely on the 2021 annual report produced by CCR, "Les catastrophes naturelles en France, bilan 1982-2020" (2021), which is now properly cited.

- **2) In L16, In (Charpentier et al., 2021), I suggest the bracket be removed.**

The guidelines about in-text citation recommend to use parentheses in this case.

- **3) In Line 30- I don't know if the authors have a reason for not capitalizing the abbreviated words in OSSASL.**

The text now reads "We call our algorithm the One-Step Ahead Sequential Super Learner (OSASSL)."

- **4) In L115, L173, 207, 295- the use of "so-called" I do want to believe it is an adjectival description of the succeeding nouns, but in the various context it has been used, it sounds more of a sarcastic use than what you intended it for in the sentence. Also, the use of so-called with OSASSL, I found inappropriate as it is still a new algorithm that has not gained ground. I suggest the authors find another appropriate use for the "so-called" term in the highlighted sentences.**

Thank you for pointing out our awkward use of the adjective "so-called" (this blog post was quite interesting on the subject: <https://thebettereditor.wordpress.com/2017/03/28/a-nother-so-called-or-is-it-so-called-blog-post/>). We certainly did not mean to be sarcastic. We removed all its occurrences.

- **5) The use of brackets should be well defined, example is at the end of L191, L193, there are cases of "unopened and opened parenthesis with no closing".**

In the example provided, there is no parentheses mismatch. We checked the entire text and did not spot any such mismatch.

- **6) Sections 4.1: Starting the paragraph with "In fact" is a disconnect from the previous discussion**

We removed the expression "In fact".

- **7) L177- "more details to follow." I suggest the sentence should be enclosed in a bracket rather than the hyphen.**

Done, thank you for the piece of advice.

- **8) L190, L239- the use of a one-sentence paragraph, I suggest should be avoided altogether.**

In response to comment 9 the first paragraph, reshaped, is not a one-sentence paragraph anymore. The second one-sentence paragraph has been reshaped to consist of two sentences.

- **9) The sentence in L190-L191 needs to be rephrased, to give an appropriate meaning of what the authors meant there.**

The sentence is short because it uses notation introduced earlier in the text. We added a comment: "In words, at time $t \geq 1$, the algorithm whose penalized empirical average cumulative risk is the smallest is determined and the discrete overarching Super Learner returns the output of that algorithm trained on all data till time t ."

- **10) Section 4.2 should be properly named. "Training of what?"**

Section 4.2 is now named "Training the discrete and continuous overarching Super Learners".

- **11) In Figure 5, the spelling of drought, not "drough" should be checked in the map presented.**

Thank you for finding this typo. It has been corrected.

- **12) Instead of the description with "left-hand side map" and "right-hand side map" I suggest the authors should label the maps with "Map A" and "Map B" or in any other format suitable for easy visual comprehension by readers.**

Done, thank you for the piece of advice.

- **13) In Table 2, I think the table should be properly formatted.**

We added the required top and bottom horizontal lines to both Tables 1 and 2.

- **14) L263-267, the sentence is too long, I suggest it be split as appropriate.**

Thank you for the piece of advice. We split the sentences in three parts.

- **15) L-290- "and have been since then" should be properly rephrased.**

We cut the original sentence in two parts.

- **16) In summary, I suggest**
- **16a) The authors need to do more editing and use more technical language in their work.**

Eventually, the revised manuscript will be read (again) by a native English speaker before being uploaded.

- **16b) The sectioning of the paper needs to be improved upon. L 199 is not a befitting section name. I suggest it should be either expunged or properly rephrased. Also, regarding the sections, if the authors decide to retain the structure of the sections, then they should give proper numbering to them.**

The sectioning of the manuscript will be improved upon.

- **16c) The paper is having an inadequate coherence in the flow of thought, aside from sectioning which has been mentioned earlier, the authors should, in addition, ensure a consistent flow of thought from one paragraph to the other, and from one section to the other.**

The manuscript will be edited with special attention to the flow of thought.

- **16d) The authors should cite relevant works in their paper for validation.**

Unfortunately, the relevant literature is scarce, in part because the challenge of anticipating the cost of drought events in France is obviously of interest mostly in France, and also because the data and methodologies are very sensitive. To the best of our knowledge, (Charpentier et al., 2021), recently published in NHESS, is the only published work addressing the prediction of the cost of drought events in France.

As explained in our reply to question 2 of reviewer 2, we do not address the same problem as Charpentier et al., (2021). It is very difficult to make comparisons between our results and theirs. We simply "quote Charpentier et al. (2021, end of Section 4.1) who say of their predictions for the year 2016 that they are 'severely underestimated'. Judging by their Figure 7, the underestimation by the discrete and continuous overarching Super Learners for the year 2016 is less pronounced than the underestimation by their algorithms (but we recall that they tackle a more challenging problem than us because we focus on the city-specific costs for those cities that have obtained the government declaration of natural disaster for a drought event whereas they consider all French cities)."

Furthermore, as written on page 11, "[f]or confidentiality reasons, we were not given the authorization to discuss how the overarching Super Learners fare compared to the algorithm currently deployed at CCR to predict the overall costs of drought events in France from 2007 to 2017. However, we were authorized to make a comparison for the sole year 2017. That particular year, the discrete and continuous overarching Super Learners outperform the algorithm currently deployed at CCR, with a precision of 96% (discrete overarching Super Learner), 94% (continuous overarching Super Learners) versus 83% (currently deployed algorithm)."

- **I think the paper has been able to explain the process of the super learner, but they still need to do more work in explaining how their developed algorithm was able to forecast the cost of drought events and how this algorithm should be better considered than previously used ones if there were any.**

Please, see our reply to question 16d.