



EGUsphere, referee comment RC2
<https://doi.org/10.5194/egusphere-2022-92-RC2>, 2022
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Comment on egusphere-2022-92

Anonymous Referee #2

Referee comment on "Assessing the performance of various fire weather indices for wildfire occurrence in Northern Switzerland" by Daniel Steinfeld et al., EGUsphere,
<https://doi.org/10.5194/egusphere-2022-92-RC2>, 2022

Although the results of the article are interesting for some people, I do not think that the results and discussion appeal to a wide audience and more importantly contribute anything new to the understanding of natural hazards. The ideas and applied methods in the article are not innovative. Moreover, I don't think the article is written and structured properly. Therefore, I suggest a rejection for the submission.

- 1) Fire hazard is not the same as fire danger. I believe fire hazard is more related to fuel than fire weather. In the context of fire weather indices, it is more appropriate to use fire danger. I suggest removing the fire hazard term from the paper unless what you are talking is mean fire hazard.
- 2) In the title and throughout the paper, you use the term Northern Switzerland; however, your study area only consists of Canton of Bern. Please use Bern instead of NS.
- 3) Line 27 - please add a reference.
- 4) Line 28 - please do not start the sentence with more than one reference. Instead, you can use phrases like "number of studies have identified." Place the references at the end of the sentence.
- 5) Line 39 - Comma is needed after "In this paper"
- 6) Line 48 - Comma is needed after "e.g., distance to infrastructure."
- 7) Line 60 - The sentence that starts with "This increase is consistent with ..." is too long. Please split it into two sentences.
- 8) Line 72 - I do not think the sentence that starts with "The study is conducted under the Wyss Academy ..." is necessary for the introduction. Maybe place it in the acknowledgments.
- 9) Line 83 - Fire Database is not a special name. Please change it to database with lower case d.
- 10) Line 104 - Change "we use here" to "Here, we use"
- 10) I do not understand why you needed MODIS data for this study. On the one hand, you state that fire records are mostly complete and on the other hand you use MODIS data to complete your fire records. Moreover, what exactly you did with the MODIS data is not fully clear. For instance, Is the Swiss plateau the same as your study region plateau? If

you are concerned about missing data in your fire database, you are only fixing half of your problem. You use MODIS data for 2003-2020; however, your time period is 1980-2020. Isn't this creating a problem in your database?

11) Line 115 - Same with comment 9. Please use fire weather indices with lower case letters.

12) Validation metric methodology (Line 144-160) is not clear to me. I had to visit Arpacı 2013 in order to understand the method. However, in their paper, they say the perfect index has an intercept of 100, and in your paper, you state that it is 1. Is this difference related to Theil-Sen method? If so, it needs to be explained more clearly. Moreover, you only have two sentences (Line 151-154) that explain the percentile method, and one of them cites a figure from a different paper. A reader should be able to understand the methodology without needing another paper. Please include more details and explain the methodology better.

13) Line 152 - please consider using "categorize days" instead of "divide days"

14) Line 175 - + 2 K? What does K mean here? Kelvin?

15) Results section starts with an explanatory analysis of the whole database, which includes the data you are not interested. Is this really needed? Please consider removing that part (Line 170-178).

16) Line 207 - you define "perform well" performance above 0.6. Is this metric similar to AUC (0.5 as random)? If so, I would not call performance above 0.6 as well. Maybe moderate? Please add a reference to the methodology that shows how this performance is evaluated.

17) Line 211 - Change "Neserov" to "Nesterov"

18) Line 214 - Unnecessary space in the parenthesis -> (score

19) Line 225 - Please fix spaces in the parentheses

20) Line 222 - Change "Neserov" to "Nesterov"

21) Line 228 - no space after comma -> Again,Sharples

22) Figure 4 has lines that reach out of the plot borders. I don't think this is a good figure. You probably aimed to have better visibility of the lines by leaving that parts out. However, please, at least, add info about where the lines reach their max. Maybe add a text above those lines?

23) Line 294 - performed overall well is not a good choice of words. Performed well overall or overall, performed well?

24) Line 314 - "M68dwd requires a snow layer as input, which we did not provide." You should state this kind of information in the methodology.

25) Line 339 - change basin to basis.

26) Line 339 and 340 - please rephrase this sentence and also remove the focus of the next study part. -> (simulate future changes to fire based on future climate projection (the focus of a next study).

27) Line 385 - Is there a test and p-value here? If not, please do not use the term significant.