

Interactive comment on “Wildland fire potential outlooks for Portugal using meteorological indices of fire danger” by Sílvia A. Nunes et al.

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Received and published: 24 June 2019

The authors thank Reviewer #1 for his positive opinion about the paper.

All changes made in the manuscript are marked in yellow.

Specific comments:

- Data and methods:

Question: Why only July and August as fire season? As you mentioned in the results section in the year 2017 the highest BA values occurred out of this period. Answer: As stated in the Data and Methods section, cumulated burned area in the fire season accounts for more than 70% of the total burned area in Portugal, and more than 80% of

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extreme fire days occur in July and August. Outlooks for July and August are therefore especially relevant when planning the fire season. Moreover, when we attempted to include in the fire season the burned area for the month of September, the overall quality of the model decreased, most likely because fire events during September are less dependable on spring conditions. However, as pointed out in several studies and reports, the length of the fire season has been increasing, and the atypical 2017 fire season (with extremely large fire events in June and October) is consistent with this trend. This issue is now addressed in the Discussion and conclusions section.

Question: Even though there is the reference to the explanation about the Portuguese Rural Fire database, what is the reference unit of the BA? Perimeters? Total BA at municipality or parish level? Answer: For each year, the total amount of BA data during the fire season was estimated by adding the contributions of all recorded events as obtained from the official Portuguese Rural Fire Database provided by the National authority for forests (ICNF). This is now clarified in the manuscript.

- Results

Question: In the data and methods section you explain the models considered as 1) null model, 2) a nested model with one covariate and 3) a nested model with two covariates. Then, in the results section, the model with two covariates is coming first (3.2) than the one with one covariate (3.3). As 3.3 section is explained/justified of what happened in the previous section, maybe you could consider to change the order in the methods section. Answer: We acknowledge the suggestion raised by the reviewer and therefore the order of presentation of the models was reversed in the Data and Methods section.

Question: In page 13 you mention that the threshold of 0.7 is lowered to 0.66. Why 0.66? Answer: As stated in the manuscript, the model with only one covariate, $\psi(d)$, presents lower variability than the model with covariates $\psi(d)$ and χ . Accordingly, the threshold was lowered to 0.66, a benchmark that corresponds to the upper tercile of the distribution.

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- Discussion

Question: Are there any future developments projected of these models incorporating any other kind of covariates, not only meteorological derived? Is the performance of those models being influenced of any possible missing covariates? Answer: The discussion section was entirely rewritten and all the points raised by the reviewer here are now addressed.

Technical corrections

Page 1, line 25: of2017 Page 2, line 18: System(EFFIS) Page 5, line 7: Lilliefors test Page 8, line4: performance of These typos were not in the original word document. They are related to the conversion from Word to pdf during the submission process.

Page 4, line 1: 1990-2018 is The typo was corrected and now the text reads "1980-2018 is".

Page 3, line 26: July 1st, August 31st Page 3, line 28: April 1st All dates in the manuscript were converted to the proposed format.

Page 7, line 20: please revise the sentence The sentence was changed.

Page 9, figure 4: please add a), b) c) if it is according to the journal graphic rules Figures were changed as suggested.

Page 12, figure 6: the caption should be self explicative, no need to go to check a previous figure. Please rewrite Page 14, figure 9: same comment as before Captions were changed as suggested.

You use "worth noting" many times in the text. The expression "worth noting" was removed when possible and now appears just four times in the manuscript.

Please also note the supplement to this comment:

<https://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2019-60/nhess-2019-60->

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AC1-supplement.pdf

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2019-60>, 2019.

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