

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC2
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Comment on nhess-2021-38

Anonymous Referee #2

Referee comment on "Impact of large wildfires on PM₁₀ levels and human mortality in Portugal" by Patricia Tarín-Carrasco et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2021-38-RC2>, 2021

General comments:

The manuscript presents a valuable study of the impacts of wildfires on human health. While other studies of this kind have been more rigorous, the work presented here is for an understudied region, and therefore provides guidance for this region regarding the concern of wildfire smoke on human health. The work is generally OK, but the presentation needs a reasonable amount of revision. Additionally, the authors should work on providing a more complete discussion regarding the limitations and benefits of their study. See below.

Specific comments:

1- The paper needs some attention to the use of English. While not too bad, some attention to editing the text to correct wording, syntax, and general use of English will improve the manuscript and help readers to better understand the study. See below for specific location and suggestions. Some specific edits are required, while others are suggestions.

2- The figures can be consolidated. Many of the figures are maps of Portugal – all good to have. I suggest the maps be combined for all "input" data (Figs 1 - 3) and a separate figure for results (Figs 4 - 6). (see note below regarding Fig 3) A layout similar to Fig 1 – a 3-up side-by-side – will work well.

3- Abstract – Has too much introduction and info on the "purpose". Sentences on lines 2-7 can be condensed.

4- Introduction – This can be consolidated. The first part of the Intro through line 34 – should be consolidated into one short paragraph. Throughout the manuscript text, many sentences can be trimmed to make a better presentation. For example, the opening sentence can be changed to:

“Wildfires have a considerable impact on the environment and humans worldwide.” (I clipped out several phrases).”

(Section 2.1 is very good – very helpful to have this description for the purposes of this paper)

5- Datasets – It is unclear if the study is considering only forest fires or all wildland fires. Please clarify. It would be helpful to have a map of fires across the study region – dots on a map or polygons of areas burned, if appropriate. Total burned area – Figure 3 – is not a project result, it is input data. So, section 3.1.1 should be integrated into section 2.2.2. In 3.1.1 you can keep info that is derived from the distribution of fires, but the data itself (shown in Fig 3) is not results.

6- The manuscript lacks a proper “discussion” section. Much of the results and the text starting on line 214 (page 13) should be turned into Discussion. Also, some of the material in the “Conclusions” can be integrated into “Discussion”. The Conclusions should be a summary of the primary findings and relevance, but should not have anything new in it.

7- A Discussion section should be formulated (comment 6) and should include more from the authors reviewing the shortcomings, assumptions, and limitations of the study and the primary outcomes, and how they are relevant. Bring out the fact that this is new information for the region that can help with decision-making. In the limitations, there should be some acknowledgment of the coarse spatial (level III NUTS – why not better) and temporal (Monthly – why not better) scales, and what it means to interpretation of the results. These coarse-scale approaches will “dilute” the results meaning there may be health effects that are not found because wildfire smoke is so “episodic” and “local”. You may not be able to show this here, so say what is needed for a more complete understanding? Why is your study still useful?

Guide the reader to help them understand why this work is “good” or “helpful”. Otherwise, it may be seen as not as good as studies that use finer resolutions, smoke transport models, etc. I think it is worthwhile, but other readers may find it too simplistic. Discuss the value of AQ monitors – why they are helpful and why they are not for assessment of fire exposure.

Detailed comments: (I have many more, but will wait for the revision to re-read)

Line 9; What does "these" refer to?

Line 78: "... the effects of short-term pollutants exposure ..." It is unclear if this is short-term exposure or short-term pollutants. Re-vise this sentence to be clear.

Lines 161-164: Can be deleted.

Line 202: Many sentences start with "Regarding ...". This is poor sentence structure. Please revise.

Line 282- 284: It is unclear why this is relevant to your study. Remove.