

Anonymous referee #3

The authors improved the manuscript compared to the original version. However, there is still a need for clarity, consistency, and specificity to enhance the manuscript's quality. Also, the paper still benefits from English editing to remove unnecessary words and thus be more specific and easier to read.

Answer: We appreciate and thank the reviewer's commentary. We follow the suggestions of the reviewer and addressed the major corrections.

The lines identified in the answers are for the track changes document, considering that the reviewer's commentaries were made identifying the lines in this file.

Abstract

- On page 2, line 33, to add the context. E.g., to support fire management. Furthermore, the authors should follow a similar in the abstract and introduction for consistency. Currently, the abstract start with the link between fire weather indices and fire behaviour, while the introduction defines the term fire regime.

Answer: We edited the abstract as the reviewer suggested. We also changed the Introduction, so now both starts with the link between fire weather indices and fire behaviour. The change in the Abstract regarding this subject is in line 32. The changes in the Introduction will be detailed forward in this document.

- On page 2, line 35, add the knowledge gap after Portugal. E.g., but it is still poorly understood to support fire management.

Answer: We add the knowledge gap after Portugal, similar with the reviewer's suggestion, in lines 33-34.

- On page 2, line 46, add the object of the paper itself before reporting the results. It is beneficial for readers to get overall the content of the article. Similarly, on page 11, line 236. E.g. This paper clarifies the effectiveness of the DSRp for estimating BA in Portugal and how vegetation influences it.

Answer: The object of paper itself was added as the reviewer suggested, in lines 43-34. We also added a sentence regarding this subject in the end of the Introduction, in lines 206-207.

- On page 3, line 58, remove the space in 'KEY WORDS'.

Answer: Corrected, in line 53.

Introduction

- On page 4, lines 61: 66, the authors should assess if that information is needed or specifically start by stating burned area as a significant component of fire regimes as in line 67 and continue providing some context on the fire weather and vegetation drivers and why this is relevant for fire management.

Answer: We agree with the reviewer and moved the fire regime paragraph to other part of the Introduction, in lines 114-120. Consequently, we also changed the beginning of this chapter, now in lines 62-67.

- Generally, the authors could improve the introduction by following a more logical and accessible structure for clarity. E.g., burnt area, fire weather, vegetation content, knowledge gap, research goals and a statement summarising what the paper is presenting. Furthermore, as stated in the title, the authors should be consistent with the content order in all the sections. That would make the paper easier to read.

Answer: We understand and appreciate the reviewer's constructive commentary and suggestions. Accordingly, we changed the Introduction structure and some sentences. We believe that this chapter is now clearer and easier to read. The Introduction is now in lines 62-207.

Methods

- The authors reported burnt and vegetation data in the same subsections, 2.3 and subsection 2.4. is using the clusters from subsection 2.5. Thus, the authors should simplify further the method section into a more logical and specific structure. E.g., 2.1. Study area, 2.2. Burnt area, 2.3. Fire weather, 2.4. Vegetation, 2.5. Analysing clusters of burnt area. 2.6. Analysing burnt area and fire weather relationship, 2.7. Analysing the influence of vegetation on the fire-weather relationship.

Answer: We agree with the reviewer and created the subsections similar as suggested. The subsection 2.1 is now in lines 210-240; 2.2 is in lines 242-264; 2.3 is in lines 265-280; 2.4 is in line 307-310; 2.5 is in lines 312-354; 2.6 is in lines 357-388 and 2.7 is in lines 390-423.

- Furthermore, the authors should assess if the subsections 2.6 and 2.7 should focus on the data analysis (e.g., from line 403 in subsection 2.4) and thus move any data preparation to the data subsection.

Answer: We've taken into account the reviewer's recommendations when moving the information for each subsection. We believe that the Methods section is now much more comprehensive and simpler.

- Also, they should refer to table 1 in 2.2, 2.3 and 2.4 subsections and table 2 in subsection 2.2.

Answer: We agree and referred the table 1 in the respective subsections 2.2 (in line 262), 2.3 (in line 271) and 2.4 (in line 310); and the table 2 in the subsection 2.2, in line 262.

- On page 20, line 403, change 'achieve the first objective' to the first objective.

Answer: Corrected, in line 340.

Results

- The authors should follow a similar structure for clarity and consistency. E.g., 3.1 Burnt area clusters, 3.2 Burnt area and fire weather relationship (at the national and municipal level), 3.3 Influence of vegetation on the fire-weather relationship.

Answer: We agree and changed the structure comparably with the reviewer's suggestion. However, we consider that the order should be different. In particular, we believe that the Burnt area clusters subsection will increase the reader's comprehension if it follows the subsection regarding the Burnt area and fire-weather relationship. Effectively, it was the analysis of that relationship (burnt area and fire-weather) at municipality scale that led us to comprehend a possible spatial clustering. Therefore, the subsection 3.1 "Burnt area and fire weather relationship (at the national and municipal level)" is in lines 426-520; the 3.2 "Burnt area clusters" is in lines 521-588; and 3.3 "Influence of vegetation on the fire-weather relationship" is in lines 589-685.

Furthermore, we moved Figure 6 and now is Figure 10, now in line 617. Consequently, the Figures 7 to 9 also changed their number in this version of the manuscript.

- Once a short name is defined in the text, the authors should consistently use it. For example, on page 33, line 587, change 'burnable area (BNA)' to BNA, as it was defined before.

Answer: We reviewed all acronyms in the text, including the one suggested by the reviewer. In particular, the example referred by the reviewer was also moved, now in line 592. The corrections were made in several sentences across the manuscript.

Discussion

- As for the previous sections, the discussion should follow a similar structure. E.g., 4.1 Burned area and fire weather relationship, 4.2 Influence of vegetation on the burnt area and fire weather relationship, 4.3 Considerations and implications for management.

Answer: We created the subsections suggested and moved several sentences. Additionally, we add two sentences in the 4.3 subsection that we consider important regarding the subsection title, in lines 799-802. The new subsection 4.1 is in lines 688-714; the 4.2 in lines 716-760; and the 4.3 in lines 762-803.

- On page 47, line 788, to re-edit for clarity. The sentence would be more appealing, stating a clear, meaningful message. The authors should do with every main message in each subject in the discussion. E.g., the main message on page 48, lines 806:807.

Answer: Accordingly, the two sentences were edited, now in lines 689-690 and 696-700, respectively. We carefully reviewed the Discussion section and edited some sentences.

- On page 51, line 898, change 'a very' to 'an'.

Answer: Corrected, in line 770.

Conclusions

- On page 54, line 952, remove 'usually'.

Answer: Removed, now in line 806.

- On page 54, line 953, change 'resolution' to 'resolutions'.

Answer: The word was corrected, now in line 808.

- On page 54, lines 955:959, to simplify the message and change 'As far as we know' to 'To our knowledge'.

Answer: We corrected the sentence, now in lines 812-813.

- On page 55, lines 963:967, change the order of the last two sentences. The implications should go to the end of the conclusions.

Answer: We agree with the reviewer and changed the order of the last two sentences, in lines 820-822.

Figures and tables:

- On table 1, show first burnt area metrics, then fire weather indices and finally vegetation for consistency.

Answer: The table 1 was changed, in line 263.

- In table 2, define the two following burn area metrics: BNAF/BNAS and TBAF/TBAS, for example, as the ratio of forest BNA and shrubland; the ratio of forest TBA and shrubland TBA. To keep consistency, edit the area of Forest in capital letters.

Answer: We appreciate the reviewer's suggestion and changed those burn area metrics in the Table 2, in lines 332-333.

- In figure 2, add a space between 'Nº' and 'Fire' and ':'.
• In figure 3, add spaces in the information provided in the plot area and change 'p-value' to 'p-value' for consistency.

Answer: We changed the Figures 2 and 3, now in lines 444 and 448, respectively.

- On figure 11 caption, line 746, add '(BA)' after 'Burnt area'. Also, in line 747, change 'Area' to 'area'.
• To add and define all the short names (e.g., 'DSR') in figure captions. E.g., on line 777, to specify 'BA'.

Answer: The figure 11 caption was changed, in lines 647-648. Additionally, we changed the specific example of the reviewer in a table caption (now in line 677) and also reviewed all the short names in the manuscript.

References

- On page 59, line 179:1080, double-check the reference.

Answer: We regret that this citation is not available online. We substituted this reference by one more updated. The new reference is in lines 979-981.

- On page 65, line 1226, remove '(Table 1)',.

Answer: Corrected, in line 1049.

- On page 66, line 1247, remove ', '.

Answer: The reference was corrected, specifically in line 1070.