

Earth Syst. Sci. Data Discuss., referee comment RC2
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Comment on **essd-2022-184**

Anonymous Referee #2

Referee comment on "Classification and mapping of European fuels using a hierarchical, multipurpose fuel classification system" by Elena Aragonese et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2022-184-RC2>, 2022

In this paper the authors propose a new fuel classification system for Europe and release a fuel map at 1 km spatial resolution. I accepted to review this paper because of the title and the abstract promise to fill one of the main gap in forest fire research. However, I read this paper several times, but it is really difficult to understand how this work fills the gap of the lack of appropriate fuel mapping in Europe.

The paper is very well written and full of suggestions and sharable concepts. The authors elaborate huge information and datasets but the results are not completely satisfactory. Unfortunately, at this stage the main innovation seems to be related with the integration of bioclimatic models to estimate the fuel depth in shrubland and grassland. However, because of the high variability of this kind of vegetation cover and the disturbances it is really difficult to validate the results of these models.

Starting from the classification, the considered forest classes are very similar to existing vegetation cover maps already available. Using a threshold of 15% of trees does not allow to discriminate fire behaviour if there is no information on which kind of fuel is present in the 85% of the area. In addition, it is evident that some species are more flammable than others and the considered classes does not allow to discriminate among these species. As a general consideration, I suggest to remove the paragraph 4.2 and define the association of fuel models parameters in a second stage of this work when most of the presented issues will be solved using other technologies such as Lidar, AI, etc...

The paper can be accepted after major revision and a better description of the objective of this work starting from the title, the abstract and the conclusions. This could help also to make the paper shorter, improving its readability.

Please, find specific comments on the attached pdf.

Please also note the supplement to this comment:

<https://essd.copernicus.org/preprints/essd-2022-184/essd-2022-184-RC2-supplement.pdf>