

Nat. Hazards Earth Syst. Sci. Discuss., community comment CC1
<https://doi.org/10.5194/nhess-2022-107-CC1>, 2022
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Reply on RC1

Ana C. L. Sá

Community comment on "Coupling wildfire spread simulations and connectivity analysis for hazard assessment: a case study in Serra da Cabreira, Portugal" by Ana C. L. Sá et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2022-107-CC1>, 2022

We would like to thank the reviewer's comments and the time spent for improving this study. Regarding the two minor comments:

1. We will revise the document and avoid long sentences to make the manuscript easier to follow.

2.

We think that the reviewer's questions are relevant, and we need to clarify them. **First**, because of the lack of information for individual fire events regarding the active fire spread periods and on the corresponding driving weather conditions, we calibrated the fire model using the historical fire regime instead of individual fire-based calibration. Considering this data limitation, we run simulations with constant weather for spreading durations lower than 24h. Therefore, based on expert knowledge, in the study area the main active fire spread frequently occurs during the 12-20h time window, when higher temperature and wind speed, and lower humidity conditions prevail. **Second**, the calibrated fire model based on this daily subset of the weather data was evaluated for the 9 largest fires (1000 to 4000 ha), using the extreme (95th percentile) weather condition calculated from that weather subset. The quality assessment was satisfactory (please see Appendix E, line 510) and thus we do not suspect that we are failing to estimate the fire spread under extreme weather conditions. **Lastly**, even if we fail to capture those extreme weather conditions because of the averaging, our calibration approach compensates that by tuning the fire spread durations to reproduce the historical fire regime. We will include the next sentence in the body text (Line 138):

"This time window choice is because fire simulations are run for spread durations smaller than 24h with constant weather conditions, and thus it was necessary to exclude milder weather conditions that typically occur during the evening and morning periods. The eventual averaging effects of the extreme weather conditions is compensated by tuning the duration of fire spread (Sect. 2.4.4)."

All the technical remarks were corrected and will be shown in the final revised version of this study.

Best regards

ana sá