

Interactive comment on “Sensitivity and evaluation of current fire risk and future projections due to climate change: the case study of Greece” by A. Karali et al.

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We thank the referee for the constructive comments that helped us improve our manuscript. Please find below an item-to-item reply to the comments.

Abstract Future projections: please state the scenario

We thank the referee for noting this. We added the emission scenario (A1B) in the abstract.

Section 2 p481, l9: what are the implications of the decreasing continentality?

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The major implication regarding wildfires is the decreasing precipitation amounts as we move from NW to E/SE, as also described in the section 2.1

l19: we only see results from three stations. Although these are described as representative, it would be useful to see more (suggestion at end).

Please see the response for the comment regarding Figure 4.

p4782, l3: 'The model uses 40 levels' - are you talking about the RCM here (as opposed to ECHAM5)?

Yes, we refer to the RCM. The text was modified appropriately.

l4: Please clarify '95.85' - if that means the number of boxes, perhaps you can just quote the horizontal resolution, viz: '...40 vertical levels and has a horizontal resolution of 25km'

This was an editing mistake. It is now corrected to 95 x 85.

Section 2.4 Please mention spin-up of the FWI index

We thank the referee for this comment. In all cases, we have applied a 1-yr spin-up. This is also added in the manuscript.

p4786, l26-28: Presumably this could be due to a variety of reasons, including ignitions and fuel/topography?

We agree with the referee that more discussion was necessary. In the revised text, we have discussed the possible reasons for the FWI thresholds, including the human dimension in regard to the ignition of fires. There is certainly a difference in the fuels, as fuel loads are higher and fuels are generally wetter in western Greece compared to the eastern and southern parts. More fuels would mean more intense fires for the same FWI, but not necessarily easier ignitions. On the other hand, wetter fuels mean less chance for inadvertently started fires, especially at low FWI (which also reflects fuel moisture). It seems that the anthropogenic influence is a key factor for the western

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Greece areas. Moreover, the topography cannot play a key role in the differences found in FWI thresholds, as it is mountainous in most parts of the country.

Figures The labels are generally a bit too small.

We increased the labels where it was necessary.

Figure 4: please use same x-axis scale on each panel. What are the error bars on this Figure?

This figure has been totally revised. Please see the new Figure 4 modified according to the following comment. The error bars correspond to the standard error of each value. This is also added in the figure caption.

Figure 4: perhaps an extra panel would be useful: - e.g. showing the polynomial fits for all stations on the same panel, perhaps coloured according to the region (WG, NG, EG). - Or, a panel showing all polynomial fits, but with the fit for each location divided by mean number of fires at FWI=10 for that location. This would highlight the acceleration in fire occurrence with FWI you see above this sort of threshold, and would help motivate the thresholds used in Figure 5.

We agree with the referee that more information is needed regarding the fitting procedure. Therefore, we chose to present two plots for each of the three areas of different fire behaviour. Additionally, for the reader that may need more information regarding the classification of the stations, we added a table. The stations of the Cyclades islands are not classified in any category, as explained also in the text. Please note that we changed EG to EG/SG, as we think that this is more representative of the geographical distribution of the stations.

Figure 5: I think you need to use the same colour scale on the bottom two rows: I was mightily confused for a while - it looks like the fire risk is larger in the near term than the distant future. Also, the current colour scale is not ideal as there is a rather sudden change between green and yellow/red. Perhaps you could cut out much of the blue

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end. Please also define near-term and distant future in Figure caption.

We agree with the referee that the colour scale might be confusing. We have tried different scalings, but in order to capture the spatial differences, we were not able to use the same colour scale for all plots. So, we kept the same colour scale for the plot of the near future and for the plots of the distant future, respectively. Moreover, we increased the fonts and we inserted more information in the figure caption. We hope that the appearance of the figure is now improved.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 1, 4777, 2013.

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