# SHORT COMMENT on NHESSD article entitled: Sensitivity and evaluation of current fire risk and future projections due to climate change: the case study of

### Greece

## (by Karali *et al.*)

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It is well known that the computation of FWI requires instantaneous input variables (usually recorded at noon local standard time), although this type of data are often more difficult to obtain than daily aggregated (mean or maximum/minimum) values, specially when dealing with RCM/GCM outputs. Probably this is the reason why the authors have used daily aggregated values of the input variables for FWI calculation (L.20-22, p.4781), although they recognize how FWI is actually calculated with instantaneous values (L16, p. 4784), not providing further rationale for their choice. Daily mean FWI is afterwards applied for the assessment of future impacts.

The authors should be aware of previous work indicating the shortcomings of daily mean FWI in current climate conditions, and its inadequacy for the assessment of future fire danger conditions (Herrera et al., 2013), and acknowledge in their article these limitations. This is specially true in the case of thresholddependent indicators (like the number of days above a certain threshold, L1825, p. 4786; Fig. 5, p. 4800), because of their inability to reproduce the spatial pattern of their respective instantaneous versions, and also because their transformation to accommodate the actual FWI magnitude does not follow a linear law.

Regarding the criticisms made by the Anonymous Referee #2, the difference in threshold magnitude between this study and the aforementioned work by Dimitrakopoulos et al. (2011), is obviously due to the negative bias of daily mean FWI w.r.t the actual FWI, which is one of the major drawbacks of using threshold-dependent indicators, as explained above.

We would suggest that the authors take into account these issues, which are of relevance to adequately assess the outcomes of their study, and acknowledge previous work on this subject.

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## References

- Dimitrakopoulos, A., Bemmerzouk, A., and Mitsopoulos, I.: Evaluation of the Canadian fire weather index system in an eastern Mediterranean environment, Meteorological Applications, p. 8393, 2011.
- Herrera, S., Bedia, J., Gutierrez, J. M., Fernandez, J., and Moreno, J. M.: On the projection of future fire danger conditions with various instantaneous/mean-daily data sources, Climatic Change, 118, 827–840, doi: 10.1007/s10584-012-0667-2, 2013.