

# ***Interactive comment on “Assessment of Forest Fire Rating Systems in Typical Mediterranean Forest, Crete, Greece” by Mohamed Elhag and Slivena Boteva***

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Dear Editor, here is my review for the manuscript entitled "Forest Fire Danger Rating Systems Assessment in the Mediterranean Type Environment, Crete, Greece" As a general comment, the objective of the study (lines 111-112) "to test and evaluate the following FFDRS, to propose possible modifications that would better adapt these systems to the Mediterranean conditions" , cannot be supported by the analysis of the data, the results and the discussion.

This is a substantial assumption from the reviewer and unfortunately, it is not supported by any requested missing analysis

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The authors provide some conclusions and recommendations, which cannot be justified in this manuscript, given the limited extent of the study and data, and also the lack of analysis based on important previous research and results related to the study of FWI in Mediterranean environments.

This is a substantial assumption from the reviewer and unfortunately, it is not supported by any missing justification. The paper presents a comparative evaluation method of two different indices, the FWI and the KBDI. The first one is widely used in all EU because it is a service of EFFIS (European Forest Fire Information Service), whereas the second one has rarely been used in the domain of forest fires in Europe because it is basically a drought index. Given the current debate about the formulation of new indices, the comparative evaluation of two indices, one of them not necessarily a fire danger one, seems rather a pioneer work and shall be considered.

Below are some particular important comments: The research paper of A. P. Dimitrakopoulos, A. M. Bemmerzouk, I. D. Mitsopoulos (2010) entitled : “Evaluation of the Canadian fire weather index system in an eastern Mediterranean environment”, which is a study the same area of Krete (Akrotiri), using very similar data and methodology, which showed the same results for FWI, has not been mentioned and taken into account.

We are fully aware of the mentioned article, to include it or exclude it from the citation is totally up to the authors, and it is not necessary to cite the article and even if the authors did not cite it does not mean that, the review allows him/herself to use a judgmental language. We decided not to include it as we are not in a position to judge the others scholarly work. We have our concerns regarding the mentioned article specifically the use of KBDI as a component of fire danger assessment, but not as a stand-alone fire danger index. Furthermore, in the comparative evaluation the Authors should put in evidence that KBDI’s relationship to fire danger is only that as the index value increases, the vegetation is subjected to increased stress due to moisture deficiency.

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The above mentioned study, the conclusions and discussion should be considered by the authors as a basis for further evaluation of FWI. The classification system of FWI (the source is not mentioned by the authors) used in the current paper is not appropriate to the Mediterranean environment, as indicated by many previous studies and researchers. There exist relevant suggestions by the research community on the appropriate FWI classification including those EFFIS and Dimitrakopoulos et al. (in the research paper mentioned above).

Generic personal point of view not supported with why is not appropriate. It's not a must that all scholarly work must not agree on everything. This is still scientific research. We have our own concerns not to use the above-mentioned article because of the observation about the beginning, the peak, and the end of the fire season is well coherent with EFFIS values. Unfortunately, this comparison was not been done because EFFIS decadal experience has not been considered, as already observed.

The following conclusions/suggestions for the use of the FWI and KBDI cannot be justified in the current study and should be avoided: - Lines 362-363: "In the first part, the (FWI) system was tested against real data covering two fire seasons and can be applicable as a method for meteorological fire risk assessment for the country." - Lines 390-392 : "The EFFIS system could use the additional data received from KBDI for more accurate early fire warning and fire management planning, such as prescribed burning when conditions are convenient for it."

Generic personal point of view not supported with any requested missing justification. Due to its nature of cumulative index, the value of the KBDI increases and varies very slowly during the year, in short, it has a very low, and delayed sensitivity to weather variables, which reduces the interest of its use as a predictor of fire danger, which is a rather dynamic reality.

Additional Comments The authors do not provide information about the source, quality, amount of fire data used in their study. Thus, it is no clear how the results

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about the Burned Area, Number of Fires and the Components of the (FWI) and KBDI have been obtained (lines 247-250, 371, 377-378) The authors preferred to retain text consistency rather than adding metadata. The meteorological station, which was the source of meteorological information for the evaluation of FWI and KBDI is at a rather long distance from the experimental site (5 km). The authors should justify the selection of the experimental site and/or the source of the meteorological data.

This is the closest meteorological station with complete data availability. In Crete there are 7 official meteorological stations (Souda, Rethimno, Tymbaki, Iraklio, Kastelli, Ierapetra, Sitia), in addition to 10 Personal Weather Stations (PWS are individually-owned outdoor instruments that measure weather conditions, which they are unreliable) but all of them functioning perfectly and 6 of those stations are apart from the study area.

Yours Sincerely

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2017-318>, 2017.

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