

***Interactive comment on “User-oriented hydrological indices for early warning system. Validation using post-event surveys: flood case studies on the Central Apennines District” by Annalina Lombardi et al.***

**Anonymous Referee #2**

Received and published: 11 September 2020

The paper presents an interesting method that could be used in the practice to mitigate flood risk. Despite the interesting topic, the paper needs to address some issues before being ready for publication. I'll mention those not already covered by the other reviewer.

In the abstract the effect of dams is mentioned, however, there is not either a further discussion about it or presentation of results regarding dams. The paper would benefit from a reorganization. For instance, the study area description cannot be part of results but should be a separated sect. or subsection. Sect. 4 comprehends a part that could be considered belonging more to an Introduction than to a Method section. I would also

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kindly suggest to add a discussion section to provide a brief discussion on the results that otherwise are just presented in the Results section and then summarized in the Conclusions section. I kindly suggest to move the stress indices description under the section Materials and Methods. Please, recall the figures in consecutive order. In case, move some figures before the others. The English grammar should be revised. Even though the topic is relevant and of interest also considering as end-user the Civil Protection, I wonder if the topic would be more suitable on NHESS for instance or on a more technical Journal. In the following, there are some more issues to be addressed.

line 85: since the indices "are calibrated taking into account a correspondence between the issued civil protection alarm level and index threshold." I ask to clarify how the lead time is taken into account. The lead time available for triggering civil protection measures is typically short, especially in case of flash floods. The longer this time is, the better.

line 149 p. 5: please notice that it is km and not Km.

Table 2: after "each", the singular form is needed.

line 463: replace "figura" with "figure".

line 491 "throught" instead of "though".

line 285: it is not statistically relevant that often floods and flash floods occur in ungauged basins. This sentence may refer to the need of improving the sensors networks deployment or to the fact that ungauged basins would largely benefit from the method proposed.

line 345 the time to peak should be considered proportional to the concentration time as 3 h may be a long time for small basins.

p.10: for the sake of understanding, I kindly suggest to remove Table 3 and add the explanation of acronyms before introducing the indices.

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line 469: Casanuova River? Maybe Chiascio River and Casanuova dam.

line 620: "two signals" instead of "to signals"

Figures Figures 1 and 7 are in low quality Captions should be self-standing, please explain all acronyms present both in the figure and in the legend. Figs. 9, 11 and 13 are not clear as the legends are not explained in the caption.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2020-296>, 2020.

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