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Interactive comment on "How rainfall event characteristics affect the applicability of I$_{30}$ as an index of intense or erosive rainfall: a brief review with proposed new rainfall index" *by* David L. Dunkerley et al.

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This study is addressing a necessary discussion about limitations of I30 erosiviy index that has been stated by many previous works; the paper list different limitations of this fixed clock period that has been used for decades to estimate climate erosivity. The comparison of results between two different climates (arid and tropical) clearly reveal the shortcomings of the I30 index to really capture the highest erosivity of a particular storm. I think that this discussion paper can be very interesting for the community of scientists working in these topics. I would suggest the following changes that, in my

opinion, could improve the comprehension of certain fragments of the paper. At the end of the introduction, page 4, lines 9 to 14 ("Various fractions are explored below. . .") are really describing results, I think that they should not be here, where aims have to be established. I suggest another wording like: Different wettest 1% -10% of event duration will be explored to determine which one can be applied equally well to short and long events. This index is intended to offer greater capacity to distinguish between the rainfall climatology of different locations than does I30. It will constitute an index of the wettest interval within a rainfall event that could be applied without the associated limitations of the use of I30. I think that the study first elaborates on the possibility to study different fractions of event duration, 1 to 10%, (Page 4, line 32), but it is not clear from the approach described in this section. In page 5, line 1, the study states that EDf5 is selected. But at this particular stage of the paper, we don't know why, in fact, to me this is a result of the study. This selection should be established after the analysis of results. In page 3, lines 24 to 27, the author describes one limitation of the I30 index: the significance of rainfall that may be different if the rain is falling on dry or wet soils. This is not solved by I30 index, but I think that EDf5 is not really an improvement for this particular issue. I found other minor remarks: Abstract, page 1 line 8, please consider to ad "continuous" , the wettest continuous 30-minute interval Page 4, line 22, please change the unit for rainfall, >2500 mm , instead of " 2.5 m, just to be consistent with the rest of units of the paragraph and the paper. Figures, The legends for the different intervals (I30, EDf5, EDf1) and their locations in the figure are not clear. It is hard to understand the meaning of these symbols and their positions at the chart. When we try to find explanations at the figure caption, it refers to the text. In my opinion, the figure captions have to clearly explain the chart, independently from the text. I would also suggest explaining what is FG or MM at each caption. I would ask the author to clarify the specific location of these intervals at the figures. I would also suggest not using the Julian Day number that is not that usual, this impedes an easy and direct observation of the event duration. Tables, I think that the captions of the tables should be before, and not after the table. If this is required by the format of this journal, please ignore the

comment.

In general I find the paper very interesting and solves an issue that I have noticed in the past. In fact, I will try to use this index in my own research to know if it improves predictions of soil loss. I fully support its publication.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., https://doi.org/10.5194/hess-2019-99, 2019.