

Hydrol. Earth Syst. Sci. Discuss., referee comment RC2
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Comment on hess-2021-417

Anonymous Referee #2

Referee comment on "Exploring the possible role of satellite-based rainfall data in estimating inter- and intra-annual global rainfall erosivity" by Nejc Bezak et al., Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2021-417-RC2>, 2021

This manuscript considers the applicability of satellite-based rainfall data to estimate global rainfall erosivity at multiple scales. The paper is intriguing and the potential for using satellite-based rainfall to achieve global data is promising. However, I have several concerns and should be considered before acceptance.

General comment:

There are numerous grammatical errors throughout the manuscript. I suggest a thorough proofreading and perhaps a professional editing service. Also, as mentioned by Anonymous Referee #1, there are several errors in the text (ex. L159-160, text for second and third examples are switched compared to Fig1). Please check your manuscript thoroughly and reorganize for better comprehension.

Specific comments:

- L217-221: I could not understand this section, especially L216-218. Is the Gini[γ] in table 3 the ratio of CMORPH gini to GloREDA gini? If so, how can we interpret this is better than bias of mean values? Please elaborate.
- L231-L239: Are the pearson correlation of mean annual rainfall erosivity and gini coefficient calculated using basin averaged mean annual rainfall erosivity? Please elaborate on the calculation, especially how the spatial distribution of each sub-catchment is considered.
- L301-L314: I could not understand how equation 5 is derived and applied. Please clarify.
- L327-L328: How can this be said from the limited amount of grids with a significant trend?
- L335-L339: In table 3, CMORPH in North America is largely underestimated, whereas

Kim et al (2020) reports CMORPH in US is overestimated. If CMORPH in this study is compared for only US, does it show an overestimation similar to Kim et al (2020)? If not, please elaborate on the difference.

- L343-L361: Information on CMORPH precipitation accuracy in different regions does not seem relevant unless it is clear to readers how it affects the over/underestimations of CMORPH rainfall erosivity in those regions.

Minor comments:

- L11-12: I could not understand what "As this data scarcity is likely to characterize the upcoming years" means.
- L198: This is not a sentence.
- L202: the comparison of 1981-2019 does not seem relevant for this manuscript.
- L220: CMORPH seems to be better for Europe? Please clarify.
- L267-268: How can this be said?
- Figure6: There are no dotted lines.
- Figure9: What is the blue dotted line?