

Hydrol. Earth Syst. Sci. Discuss., referee comment RC1
<https://doi.org/10.5194/hess-2021-417-RC1>, 2021
© Author(s) 2021. This work is distributed under
the Creative Commons Attribution 4.0 License.



Comment on hess-2021-417

Anonymous Referee #1

Referee comment on "Exploring the possible role of satellite-based rainfall data to estimate 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-RC1>, 2021

The paper investigated the possible role of satellite-based rainfall data to estimate rainfall erosivity at global, continental and local scales. Besides, the application of a simple-linear function for CMORPH data correction was also conducted in this paper. The paper is interesting and is well organized. The layout of the manuscript conveys a clear presentation of the topic. However, I do have few questions regarding the content and results of this paper. Some major queries should be clarified before acceptance.

General comments:

- Both the abstract and conclusion should be improved. The authors should emphasize the contribution of this paper.
- As the authors mentioned in the manuscript that many studies have conducted the satellite-based precipitation products for rainfall erosivity estimations. I wonder what's the difference between this paper and previous studies. Is there any significant improvement or contribution obtained in this paper?
- Parts of the description are not in accord with Figures and Tables in the manuscript. For example, Fig. 1 (lines 159-160) and Table 3 (lines 213-215). Please check throughout the manuscript.
- Table 1. The mean values calculated by CMORPH and ED indicated a significant different trend for Africa and Asia. Please provide possible reason.
- Results obtained from CMORPH reveal a serious underestimation problem for annual scale, whereas results obtained for monthly scale overestimate the rainfall erosivity for six months. I wonder if this is reasonable.
- I am curious what is the CMORPH correction procedure? How do you get the equation (5)? It doesn't make sense to me that the correction equation did not adopt the information of CMORPH.

Other comments:

- Line 187. What's R approach?
- Line 189. Replace Oceania with North America (see Table 1).
- Parts of the values displayed in Table 3 are incorrect. -40%, +11% and -56% (remove the %).



Comment on hess-2021-417

Anonymous Referee #2

Referee comment on "Exploring the possible role of satellite-based rainfall data to estimate 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[] 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 in 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?