

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC1
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Comment on nhess-2021-412

Anonymous Referee #1

Referee comment on "Variations and risk of extreme precipitation events with sub-daily data: a case study in the Ganjiang river basin" by Guangxu Liu et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2021-412-RC1>, 2022

General comments:

This manuscript focused on analyzing variations and risk of extreme precipitation events in the Gangjing river basin. The authors used sub-daily records and investigated the changes and temporal scales of extreme precipitation with gamma parameters and M-K test. The research is suitable for *Natural hazards and earth system*.

The research got some interesting findings that the intensity and occasional of extreme precipitations will increase in spring and elevation is correlated with extreme precipitations in the plain areas and basin, which is very helpful for similar researchers and the local authorities.

The manuscript is written clearly. The methods are appropriate and scientific, and the results are clearly presented. From a general point of view I think the reported findings and methods are very interesting and providing a valuable contribution to the related research in the study area. So I suggested that this manuscript should be accepted after minor modifications.

Below are some additional comments which might be helpful in guiding a revision.

Details comments

- Line 12-13: "Extreme precipitations have the characteristics of occasional but sudden occurrence in summer and spring and the intensity and occasional probability will increase in spring in the future in Yifeng, Zhangshu and Ningdu." Too long, please rewrite this sentence.

- Line 26: " reached 180 People ", P should be lowercase.

- Line 43-44, "Cao and Lu find that the biggest increase of summer precipitation in China from 1961 to 2010 were found in the middle and lower reaches of the Yangtze River ". please rewrite this sentence

- Line81: "75.32%, and 75.74% respectively (Ren, Zhang et al. 2014)..", Delete the extra full point

- Line 91: "contribution to the rise of the frequency of extreme precipitation(Mukherjee

et al., 2018).” Delete “of extreme precipitation”.

- Line 92: “the spatial distribution of monthly and annual precipitation and 1-day extreme precipitation and their trends ”, too many and, Rewrite the sentence.

- Line 95: " many researchers" should be replaced by "previous studies" (for example).

- Line 106: “but It may cause flash flood and even landslides and debris flows in mountain areas or arid area ”I in “It” should be lowercase.

- Line 159-160, “extreme events based on intensity such as yearly or seasonal maxima, CWD10, CWD20, R1 day (annual), R10 mm and 160 R20 mm indices from the Expert Team on Climate Change Detection Monitoring Indices (ETCCDMI) (Soro et al., 2016). The sentences is obscure and incomplete. Please rewrite it.

- Line 168-169: “The main impact of extreme precipitation on humans is to cause flood disasters while flood disasters often occur several times in some years and are missing in other years.”. Not clear, Please consider to rewrite it.

- Line 197: "The sample L-moments can be computed as the population L-moments of the sample. Assume that the variable X follows a certain". There should be a full point after the sample.

- Line 173: "and southwest in summer (Yin, Kim et al. 2007).", References section did not list this cited paper.

- Line 321: "the recurrence period is" It should be 'return period'

- Line 389: "(YIN, TIAN et al. 2018)". References section did not list this cited paper.

- Line 698: "Precipitation events, especially high intensity precipitation events, are key to precipitation is highly variable in time. Incorrect" Rewrite it.

- Line 430-431: "Obviously it would be better to use sub-daily precipitation for extremely events analysis to avoid underestimation potentially dramatic consequences they

caused like flood risk.”, Rewrite the sentence.

- Figure 2, “Frequency and contribution of runs of 12-H events.” The Image resolution is low and unclear.