

**December 2, 2023**

**RE: Reminder hess-2023-167 (author) - manuscript needs Revisions**

Dear Editor,

Thanks for your e-mail on December 2, 2023, which provided useful comments from the reviewers on our manuscript entitled “Employing the Generalized Pareto Distribution to Analyze Extreme Rainfall Events on Consecutive Rainy Days in Thailand's Chi Watershed: Implications for Flood Management”.

We corrected this comment carefully and revised the manuscript according to your suggestions. We would like to thank the reviewers for a careful and critical review of the paper. We would also like to thank you for processing our manuscript.

Sincerely,

Piyapatr Busababodhin

## Reviewers: Red highlights

**Title:** Employing the Generalized Pareto Distribution to Analyze Extreme Rainfall Events on Consecutive Rainy Days in Thailand’s Chi Watershed: Implications for Flood Management

In their study, the authors have put forth the application of the Generalized Pareto Distribution (GPD) as a means to characterize the extreme rainfall data. They have estimated the distribution's parameters through both maximum likelihood and linear moment estimation methods. However, it is worth noting that relying solely on the GPD may be insufficient. It would be beneficial to incorporate additional distributions for comparative analysis. Furthermore, enhancing the analysis by taking into account spatial and temporal dependencies within the model could prove valuable.

| No | Comments   | Details  |
|----|--|--|
| 1  | It seems analyzing the extreme rainfall for ‘Chi watershed’ is the key novelty of the paper. While the findings could have regional importance, some discussion on the broader implications of the results and how they advance the relevant literature could be useful. | <p>Thanks for comments, we have added explanations to expand on the regional benefits from this study to a broader level in Discussion Section.</p> <p>“Our findings emphasize the necessity for future rainfall management planning specifically within the Chi Watershed. This study can be extended beyond the Chi River Basin by examining the potential impact of its findings on policy formulation, infrastructure planning, and disaster mitigation strategies in regions confronted with analogous challenges. Broadening the scope, the research probes the implications of its results for the domains of hydrology, climatology, and environmental science.</p> <p>Numerous organizations, including prominent bodies like the IPCC and UNFCCC, are increasingly acknowledging the pervasive challenges posed by climate change. This global</p> |

| No | Comments  | Details   |
|----|---|---|
|    |   | phenomenon manifests in widespread impacts, affecting temperatures, and altering the frequency and intensity of extreme weather events. Among these organizations.” |
| 2  | Figure 1 legend: ‘high’ is probably a misspelling of ‘high’. Maybe also add a legend for the thin black lines.  | Thanks for comments, we have edited.  |
| 3  | Table 1 and 2: What do the rows in bold mean? Maybe mention that in the captions.   | Thanks for comments, it is the three highest return level predictions. We added an explanation to the caption.  |
| 4  | Station IDs: I found following the station numbers a bit difficult. Maybe some abbreviated forms of the station names (that are shown in Figure 3) could be easier to follow. | Thanks for comments, we have edited.  |
| 5  | Figure 2: What is ‘index’ in x-axis?  | Thanks for comments, it is a ‘time’. We have edited.  |
| 6  | Section 3.4 heading: ‘estimate’ could be started with uppercase ‘E’. The same goes for a few other section headings. Please, check if they are consistent.                    | Thanks for comments, we have checked and edited.  |
| 7  | Table 4: Full stop missing at the end of the caption.   | Thanks for comments, we have edited.  |
| 8  | Table 4-7: Showing some of the data with single/no decimal points could improve the readability of the tables.  | Thanks for comments, we have edited.  |
| 9  | Figure 4: What results are shown by the quantile plots? Maybe mention that in the caption.  | Thanks for comments, we have added explanation.   |
| 10 | All figures: The axis titles and ticks of almost all figures are relatively small and difficult to read.  | Thanks for comments, we have edited.  |
| 11 | Discussion: There are four ‘(cite reference)’ and one ‘(cite source)’ in the text between lines 225-240. These appear to be serious editing errors.                           | Thanks for comments, we have edited.  |