

## ***Interactive comment on “Uncertainty analysis of the rate of change of quantile due to global warming using uncertainty analysis of non-stationary frequency model of peak-over-threshold series” by Okjeong Lee et al.***

### **Anonymous Referee #3**

Received and published: 3 July 2020

The manuscript models the POT based extreme rainfall at Busan and Seoul sites of Korea using the Generalized Pareto distribution fitted under stationary and non-stationary settings. The authors compare the stationary GPD and non-stationary GPD based on the parameter uncertainty estimated using the Metropolis-Hastings (MH) algorithm. The manuscript can be published after addressing the following comments:

For constructing non-stationary GPD, the authors use DPT as the covariate. The reason for selecting DPT as a covariate is not clearly mentioned in the manuscript. Further, the authors should include a number of other covariates that affect the rainfall of the

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study area in the non-stationary setting.

The reason estimating the parameters using the probability weighted moments (PWM) over the other state-of-the-art methods such as the maximum likelihood or L-moments should be mentioned in the manuscript.

The language of the manuscript is not adequate for an international journal. There are many vague/substandard sentences throughout the manuscript. For example, Line # 44-48, 75-79, etc. Further, the title of the manuscript is not clear and wordy. Include rainfall or precipitation in the title.

Fig. 2: Add legend or explain different lines in the figure caption.

Fig. 3: Why the PDF of the non-stationary model is shown for the DPT values of 20.2576 (Busan site) and 21.4962 (Seoul site)? Expand S and NS in the legend.

Most of the Figures & Tables: Use sentence case for figure title, legend and axis title.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2020-167>, 2020.

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