

This work presents a non-stationary methodology to model seasonal and interannual variability of monthly maxima of daily precipitation, based on the Generalized Extreme Value distribution, applied to 519 stations in Germany. The subject is interesting, and the manuscript is very well structured, with appropriately designed analyses. Although the work is clearly presented, it follows a highly algorithmic approach which at times is difficult to follow. My remarks are mainly focused on the hydrological and practical relevance of the methodology particularly with respect to the nonstationary modelling of the interannual variations.

### **Major comments**

-Although the study of seasonality through cyclo-stationary models is well established in the literature, modelling of interannual variations using nonstationary models is not as common. A possible reason might be that interannual variations do not have a well-understood physical basis, which is a theoretical requirement in order to rigorously apply nonstationary models (see e.g. Montanari and Koutsoyiannis, 2014). Rainfall interannual variations are usually irregular and linked to rainfall's natural variability, which is typically quantified and modelled with stochastic and stationary approaches (e.g. Iliopoulou et al. 2018; Iliopoulou and Koutsoyiannis, 2019). In this respect, I think it would be beneficial to expand the discussion in the Introduction on the rationale and scope of using a nonstationary approach to model interannual variability.

-A similar question relates to how such a method could be applied in practice. For instance, could the authors provide an example of a seasonal-interannual nonstationary EV modelling for a selected station compared to an application of their seasonal-only approach?

-Regarding spatial consistency, Figure 6 suggests that stations with interannual components do not follow a specific spatial pattern, which could be potentially indicative of a physical mechanism, but rather show a large spatial variability, which might be indicative of a large uncertainty involved in the identification of these variations. How do the authors explain this spatial variability? Does the proposed nonstationary approach allow accounting for uncertainty in parameter fitting?

### **Minor comments**

-Conclusions: It would also be interesting to note here the percentage of stations favoring a seasonal-only variation of the shape parameter.

-Please explain subscripts  $i, j$  in Equation (3).

-Line 110: typo 'interactions'

### **References**

Iliopoulou, T., Papalexiou, S.M., Markonis, Y. and Koutsoyiannis, D., 2018. Revisiting long-range dependence in annual precipitation. *Journal of Hydrology*, 556, pp.891-900.

Iliopoulou, T. and Koutsoyiannis, D., 2019. Revealing hidden persistence in maximum rainfall records. *Hydrological Sciences Journal*, 64(14), pp.1673-1689.

Montanari, A. and Koutsoyiannis, D., 2014. Modeling and mitigating natural hazards: Stationarity is immortal!. *Water Resources Research*, 50(12), pp.9748-9756.