Response to reviewer #2

We thank the reviewer for his comments and for taking the time to review our manuscript. Our answers to the two specific comments are show in blue.

I'd like to see the criteria used by the authors to choose MPI-M-MPI-LR-GERICS-REMO2015-v1 as a single model to assess the climate change impact instead of using an ensemble from EURO-CORDEX.

We agree that using a large number of different climate model outputs can show the uncertainty of the predictions with regard to the input uncertainty. However, the goal of our paper is to present a reasonable chain of methods together with their importance for downscaling. As stated in the paper the choice of the model was aligned with the data availability (at that time) within the ClimXtreme Central Evaluation System framework. In principle any other model data could be used as well.

Also, I would like to see 1-2 sentences regarding your experience with extrapolation issue in Line 265-270 in case the modelled precipitation is extremely larger than the observed extreme.

It is true that the exponential function can lead in some cases to an overestimation of the precipitation extremes. For those cases, the extrapolation can be restricted by a linear component following the procedure described in Yan et al. (2020). This will be added to the revised manuscript.

$$F(z) \ = \ \min\left(1 - e^{-\lambda z}, \frac{U_m - U_{m-1}}{Z_m - Z_{m-1}} + U_m\right)$$

With (Z_m, U_m), (Z_{m-1}, U_{m-1}) defining the pairs of the largest two precipitation observations and corresponding quantiles.

Reference:

Yan, J., Bárdossy, A., Hörning, S., & Tao, T. (2020). Conditional simulation of surface rainfall fields using modified phase annealing. Hydrology and Earth System Sciences, 24(5), 2287-2301.

Minor comments

All these remarks will be accounted for in the updated manuscript.