General comments:

I would like to thank the authors for revising the manuscript and taking into account my comments. Unquestionably, this is a quite improved version relative to the previous one. However, there are still some points that I would like to be clarified before accepting this manuscript for publication.

In general, I am happy with how the authors responded to my comments on the dependency structure and the duration of the events. With respect to the structure of the paper I think there is still room for improvement and Figure 5 could be a bit clearer.

The main point that is still not clear to me is the way the Monte-Carlo simulation is performed to obtain the events used for the flooding probability simulations. Bellow I have more specific comments on this. Additionally, I would still like to see a different way of calculating the error statistics of the meta-model.

Specific comments:

Figure 3:

The blue colour for the selected events might be a poor choice with respect to visibility, against the black colour of the observed events.

My main observation though is on the simulated events, which are still puzzling me. That is why I asked to see the histograms in my previous comment.

You mention:

Line 223: “Step (1) Fitting of the marginals of ‘amplitude’ variables through the combination of the empirical distribution, below a suitable high threshold *u*, and of the Generalised Pareto distribution (GPD) above the selected threshold *u* (Coles and Tawn, 1991) using the method of moments.”

Line 347: “Following Step (1) described in Sect. 3.3, the extracted data are used to fit the marginals of the ‘amplitude’ variables using the GPD distribution with the selected threshold value *u*Hs=6.2m, *u*Skew Surge=0.48m, and *u*U=18.9m/s corresponding to ~2 extreme events / year. The marginal distributions are provided in Supplementary Materials B.”

Line 355: “Note that some delineations (on the bottom left hand corner) can be noticed, which results from the threshold-based procedure to model the probabilistic distributions (see Sect. 3.3).”

First of all, I would expect that the thresholds values you provided would match the delineations seen in the figure, which from what I can see in Figure 3, are around 4 m, 13 m/s and 2.3 m for Hs, U and SWL respectively.

The simulated events seem to be quite dense above these thresholds (i.e., extremes events), while on the opposite side there are not that many events bellow the threshold. In essence, you are simulating more extreme than mild events, which I would not expect to be the case. Please explain if I am missing something here. This would mean that your probabilistic analysis for the flood volume is affected as well.

I have mentioned this issue in my previous review as well, but I did not recieve any response from the authors on this.

Figure 5:

It is still a bit challenging to navigate this figure. For example the n training data used in STEP 1 are subsampled by the output of STEP 2. I would expect that a change of order in STEP 1 and 2 will make this clearer.

I think it will help to add some general titles in the steps as well, like for example "Meta-model for flood volume estimation", "Monte-Carlo sampling", and "Global sensitivity analysis" for the current steps 1-3.

It is not explained (and I do not understand) why some boxes have more intense colours.

Figure 6:

Thank you for clarifying why there is only a single value for Q^2 and not a mean with an uncertainty range. Yet, the method you are using to calculate that (Hastie et al., 2009, which I noticed is missing in the reference list in the end of the manuscript) is used in Hastie et al., 2009 to calculate an estimate of the prediction error (based on a loss function). While here you are applying this to calculate an error-statistic (Q^2) that is affected by the variance of the observed (modelled) data, which since you are merging all the k-folds together is quite high. Hence, I would propose to calculate Q^2 for each of the k-folds, and then present the average values with an uncertainty band. I am curious to see if the mean Q^2 will be as high as 99.2%.

Minor comments:

Line 351: "...threshold υ of Eq. (2)..."

I imagine this is equation 4 now

Line 353: "N=50,000 events (representative of 1,000 years)."

How do you scale the number of events to number of years?