Response to Comments by Anonymous Referee #2 (RC C1287)

Title: **An elusive search for regional flood frequency estimates in the River Nile basin**

Specific comments

P2676 L15: 'MAF' Appeared before its full name was explained.
Response: We defined it now in full before use.

P2677 L27-29: citations should be in a chronological order. There are couples of other instances where citations do not follow a chronological order. Please check and make sure the others are also okay.
Response: This has been checked and corrected.

P2679 L29: 'peak flow quantiles (for different return periods) estimated' Change to 'peak flow quantiles (for different return periods) are estimated'
Response: Corrected

P2680 L11: 'took part of a larger project' Change to 'took part in a larger project.
Response: Corrected.

P2681 L24: '92m square' SRTM DEM data are not exactly 92x92 m. The size of the grid varies based on actual locations on the globe. **L28**: 'resulted into' Change to 'resulted in'.
Response: Agreed. The word square has been removed. This has been corrected appropriately.

P2683 L19: 'four regions (2 and 5; 1 and 14), obtained in the' Change to 'four regions (2 and 5; 1 and 14) obtained in the' L22: 'were found to be similar and were merged' Change to 'were found to be similar and hence merged' L23: 'were found different and were kept separately' Change to 'were found different and kept separately'.
Response: Corrected accordingly.

P2689 L1-5: 'For regions 9, 11 and 12, the increase in the slope is very strong as the return period increases. In contrast, strong decreasing slopes are in regions 13 and 15. In this case, the growth curves first rise and then fall to almost constant value as the return period increases.' I cannot observe any decrease or fall for regions 13 and 15 in Fig. 7. Please explain.
Response: Indeed the rise and decrease in slope of curves for regions 13 and 15 cannot be properly seen in Figure 7 but they exist. This is because of the fact that the return period axis in Figure 7 has been provided in Gumbel scale.

P2690 L1-5: 'Plots of correlation coefficient of the MAF versus the Len1, Area, MeanE and MAR for the entire basin data is shown in Fig. 8a. The values of the correlation coefficient vary significantly with these catchment characteristics; indicating that the behaviour of the MAF and also the AMF properties, is controlled differently by the different catchment characteristics.' Can authors comment on the correlation displayed in Fig. 8a? For example, why negative correlations between MAF and MeanE, MAF and MAR?

Response: The negative correlations between MAF and MeanE as well as between MAF and MAR is because of the fact that the downstream catchments of the Nile and generally flat (low elevation) and very low values of annual rainfall, respectively, but the values of the annual flows (hence MAF) are very high. These very strong effects have overshadowed the positive relationships between MAF and MeanE and MAF and MAR in the upper Nile catchments. This is now clarified in the revised manuscript.

P2692 L9: 'interpolating the value of the Gf100 to produce a continuous map' What kind of interpolation method did the authors use here? I don't see any theoretical basis for interpolation Gf100. Can one simply interpolate the discharge value/ratio of a certain return period without knowing the spatial distribution function/model of this variable? The continuous map perhaps looks nice, but it doesn't really mean anything.

Response: Ordinary Kriging was used. The advantage was that it adds the ability to determine some evaluation of accuracy of the resulting predicted surface. This is now clarified in the paper.

P2695 L7: 'It is clear from Fig. 9b' shouldn't this be Fig. 10b?

Response: Indeed, it is Fig. 10b and not 9b. It has been corrected.

P2703 Table 1: Please explain Val and why this property is selected. For peak flows, why didn't the authors use variables that are more relevant such as n-day max rainfall, longest rainfall duration etc. I am not convinced that MAR should be considered as 'paramount in influencing the magnitude of peak flows', as the authors stated. What is the difference between Len1 and RhL?

Response: We divided MAF with catchment area and we called it velocity. Len1 is the longest path within the subbasin or river catchment length while RhL is the longest path within the subbasin or river catchment width. Each has different influence on the type of stream or river. This is clarified in the revised paper.

P2710-2711 Fig.5 and Fig. 6: use different colors or markers for P3 and GEV. I can hardly differentiate them.

Response: Different colors or markers for P3 and GEV are now used to differentiate the two curves.

P2715: Fig. 10a: markers for t>29 and t>39 are hard to be differentiated, please consider to change one of them.

Response: Markers for t>29 and t>39 in Fig. 10a were now considered for change to make them more distinguishable.