

Reinders and Munoz, 2023, "Accounting for Hydroclimatic properties in flood frequency analysis procedures"

Summary: This study explores annual maxima discharge from gages across the U.S. and uses L-moments to aid selection of probability models for flood frequency analysis. They show that climatic regime and precipitation intensity of the region are useful indicators for guiding selection of the model, with cool climates best represented by GEV distributions and arid climates best represented by LN3 distributions. Overall, this is an interesting and useful study that provides nuance on flood frequency analysis in the U.S.

General comments:

- I agree with a previous reviewer that the climatic regions are quite large, but I think this is OK, as it is a starting point for showing that the LN3 distribution used for flood frequency analysis is not appropriate everywhere in the U.S.
- Where do the highest and lower 20% of Psc tend to occur spatially? It would be great to see a map of this. I assume the highest 20% of Psc occur in the arid areas, as you mention in the paper, but it would be interesting to see if that is truly the case or not.

Specific comments:

- Lines 325-335: I think simply including elevation could be a helpful way to delineate the arid region, as high elevation sites have very different precipitation and soil properties compared to low elevation prairies. This would be a great avenue for future work.

Technical corrections:

- Line 248: replace "does indicating" with "indicates".