Response to S. Cohen (Reviewer # 1)

Manuscript title: Water depth estimate and flood extent enhancement for satellite-based inundation maps

The authors thoroughly addressed the reviewers' comments. The two new sections add great value to the manuscript.

We thank the reviewer for appreciating our efforts in improving the study.

Minor comments:
1. The new sections need to be better integrated into the manuscript by moving the methodology and results description to the paper's methodology and results section. They were added as a somewhat stand-alone segment.

We see the point of the reviewer (we also noticed this aspect and we have been thinking about it). However we would like to dedicate the method section exclusively for the description of the FLEXTH methodology (which is the focus of the study). Furthermore, if we were to address the concern raised in the review, it would be necessary to include the ICESat-based flood depth evaluation procedure in the methods section as well. In our opinion this would reduce the readability of the text.

2. In section 4: 'bypassing [some] of the limitations…' Stress that simulated floods have their own limitations and (often considerable) biases.

Agreed.

3. FwDET version 2.1 (Cohen et al., 2022) was also implemented in GEE, providing better boundary cell filtration. Even if the authors do not use the most recent version it is useful to reference it for the readers.
We have to admit it is not super clear to navigate through all the versions of FwDET, which also include alternative implementation for different platforms (e.g. Arcgis, GEE, Qgis).

Nonetheless, the GEE version we retrieved from Github (the one we used for benchmarking) features both the recursive smoothing filtering as well as the slope filter of the boundary cells (see lines 335-340). Thus, suggesting it is in fact the latest implementation of the algorithm (i.e. the Cohen et al., 2022 mentioned by the reviewer). This aspect is now clarified in the manuscript and further citations are provided (see lines 299-300).

Cohen, S., B.G. Peter, A. Haag, D. Munasinghe, N. Moragoda, A. Narayanan, S. May, (2022). Sensitivity of Remote Sensing Floodwater Depth Calculation to Boundary Filtering and Digital Elevation Model Selections. Remote Sensing, 14, 5313. https://doi.org/10.3390/rs14215313