

Interactive comment on “Reproducing an extreme flood with uncertain post-event information” by Diana Fuentes-Andino et al.

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We thank Timo Kelder for providing constructive comments that will help us improve our manuscript. All remarks will be carefully considered. We also refer Timo Kelder to the supplementary document “Major_revision”, where a summary of all major revisions after all reviews comments are presented. Points 1, 2, 4, 5 and 9 of the document are related to some of the comments raised by the reviewer.

More specifically, we will like to address some of the comments as follows:

We agree on the benefits of using the LISFLOOD model for flood-extent predictions (Bates et al., 2010; Horritt and Bates, 2002). This does not exclude the possibility to use it for flood routing.

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We appreciate the suggestion to justify the choice of modelling tools used here, thanks for pointing out the benefit of the Muskingum-Cunge-Todini approach; we will improve this in our work. Please refer to point 4 in Major_revision .doc.

The work will benefit by including the suggested references: Mastin and Olsen (2002).

Major arguments:

1. We will include the reviewer suggestion to make clearer the manuscript (also refer to point 9 in Major_revision.doc).
2. We will improve our argument concerning definition of acceptability of the modelling results (also refer to point 1 in Major_revision.doc).

We will address each of the points in Timo Kelder's Minor Arguments, specifically:

Point 1: we will improve the text regarding the reason why hydrograph were estimated.

Point 2: We thank Timo Kelder for his suitable suggestion to improve the header 3.2.

Point 3: We will clarify the text, explaining how the spatial variability of the topography in the urban areas makes model results more sensitive in these areas.

References

Bates, P. D., Horritt, M. S. and Fewtrell, T. J.: A simple inertial formulation of the shallow water equations for efficient two-dimensional flood inundation modelling, *J. Hydrol.*, 387(1–2), 33–45, doi:10.1016/j.jhydrol.2010.03.027, 2010. Horritt, M. S. and Bates, P. D.: Evaluation of 1D and 2D numerical models for predicting river flood inundation, *J. Hydrol.*, 268(1–4), 87–99, doi:10.1016/S0022-1694(02)00121-X, 2002. Mastin, M. and Olsen, T.: Fifty-year flood-inundation maps for Tegucigalpa, Honduras, U.S. Geological Survey., 2002.

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