

## **Reviewer 2**

**The authors wish to thank the editors and reviewers for their time and effort for reviewing our manuscript. We hope that the changes have improved the manuscript to a level that is suitable for publication, and we look forward to your response.**

### **Specific comments**

#### **Materials and Methods**

In this part, I believe that the authors must use numbers rather than describing numbers with text (i.e. 10.000 km<sup>2</sup> rather than 10 thousand km<sup>2</sup>).

Corrected.

*Please see L21 on p.3 and L2 & L9 on p.4*

The methodology is well described and the method sounds scientifically correct but I believe and as it stated by another reviewer they should describe their methodological steps chronologically in order to avoid confusion. Additionally, I would suggest the authors to remove section 2 on the section describing their methodological steps in order to increase reader's friendliness.

Many thanks for the comment. To avoid any confusion, section 2 (explanation about the FLFA method) has been moved to before the model calibration part. Also, the "Model Calibration" and the "Model Validation" parts are totally separated from each other.

Moreover, I suggest the authors to give more information about the raw data used. As a reviewer without knowledge of the raw dataset, this is hard to assess. Please describe in more detail how total structure damage, average market value and mean water depth were calculated.

We are grateful for your suggestion. The processing of raw data and the spatial aggregation process is now described in more detail.

*Please see L24-29 on p4 and the caption of figure 2.*

On the data description part, change 'hydrological simulation' by 'hydraulic simulation' and 'bi-dimensional hydrological model' by '2D hydraulic model'.

Corrected.

*Please see L7&10 on p.4.*

#### **Discussion**

In general, the discussion part is missing apart a small discussion of their findings in section 4. I would suggest the authors to describe their results in more detail as well as with respect to findings from other case studies available in the literature. A more detailed comparison between the flood loss function for Italian residential structures presented in this study with other processes or other types of elements at risk would be in my opinion an added value and would underline the importance of the specific one presented here.

We appreciate your suggestion. In the new version, a detailed comparison has been added, and the results are discussed in more details. In this version, *section 5* which is related to results comparison and model validation has been changed substantially.

*Please see the highlighted parts of section 5.*

## Literature.

Karagiorgos K, Heiser M, Thaler T, Hübl J, Fuchs S. (2016) Micro-sized enterprises: vulnerability to flash floods. Nat Hazards 84: 1091-1107

[Added.](#)

[Please see L17 on p.7](#)

Karagiorgos K, Thaler T, Heiser M, Hübl J, Fuchs S (2016) Integrated flash flood vulnerability assessment: insights from East Attica, Greece. J Hydrol. 541(A): 553-562

[Added.](#)

[Please see L24 on p.7](#)

Fuchs S, Kuhlicke C, Meyer V (2011) Editorial for the special issue: vulnerability to natural hazards-the challenge of integration. Nat Hazards 58(2):609-619

[Added.](#)

[Please see L24 on p.8](#)

Luino F, Cirio CG, Biddoccu M, Agangi A, Giulietto W, Godone F, Nigrelli G (2009) Application of a model to the evaluation of flood damage. Geoinformatica 13:339-353

[Added.](#)

[Please see L11 on p.3](#)

Papathoma-Köhle M, Keiler M, Totschnig R, Glade T (2012) Improvement of vulnerability curves using data from extreme events: Debris flow event in South Tyrol. Nat Hazards 64(3):2083-2105

[Added.](#)

[Please see L12 on p.3](#)

Totschnig R, Sedlacek W, Fuchs S (2011) A quantitative vulnerability function for fluvial sediment transport. Nat Hazards 58(2):681-703

[Added.](#)

[Please see L24 on p.2](#)