Interactive comment on "Brief communication: On-site data collection of damage caused by flash floods: Experiences from Braunsbach, Germany, in May/June 2016" *by* Jonas Laudan et al.

Anonymous Referee #2

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The paper describes the field survey and some first results after the flash flood event of Braunsbach in Baden-Württemberg in Germany. This type of event and the analyses are an interesting and relevant topic in the field of building damage due to extreme flood events. The complex characteristic of these extreme flood events and the resulting, in some cases, very heavy structural damage is not only in Germany an insufficient understood problem.

The aims of the paper are the identification of the damage relevant parameter due to flash floods and a discussion about the benefits of the use of the open source software "KoBoCollect" for the data acquisition.

The paper gives a short overview about the process of the event and the investigation

area. The relevant aspects of preparation and realization of the data collection during the field survey are described.

During the field survey, the authors classified the damaged buildings into a damage classification system developed by other authors. A damage grade as a measure for the structural damage was assigned to each damage case. These damage grades and the documented impact and building parameter are the basis for the statistical analyses for the identification of the damage-relevant parameters. These statistical analyses are a further focus of the paper. From the viewpoint of the referee, the linkages between the individual steps of the described procedure are logical and comprehensible.

The principle problem of the paper is mentioned by the first referee. A "brief communication" should represent a significant contribution to science, ground breaking and new results . . .

In its present form the paper would be in principle a good damage report after correcting some inaccuracies. But in the present form it fulfils not the demand for a brief communication. In general there are two possibilities: to find a journal that accepts a report form or like suggested by the first referee, to extend the work to a research paper including a detailed analysis with more graphs and figures. In the latter case also more topic related literature should be cited. In each case the type of impact (flash flood, debris flow or mud flow) should be clearly sepa-rated with respect to the involved material components.

Some other comments are necessary: By the application of the damage classification system, the authors speak from the assignment of damage classes or degree of damage. In contrast, the original publication refers to the term "damage grades".

According the paper, the team was in the field first one week after the event. This is related with the careful preparations before the survey. However, it should be discussed whether the damages a week after the event still clearly assessable due to the advanced clean-up work. It could be also discussed, whether the water level measure-

ments with the thermographic camera the ascending humidity in the walls was taken into account.

A discussion about the topic process intensity seems also necessary. The first referee has here the opinion that the exposition belongs not to intensity. I believe at the end this is a question of the understanding of the meaning of intensity. Should the intensity considered only as a combination of impact parameter (water level, velocity, material density and debris impact)? Or has it an extended meaning like for earthquake according to EMS-98 (Grünthal et al. 1998), where also the effects on humans, nature and building were considered for the assignment of the intensity? Clear, for the damage also the exposition of the building can be relevant (Maiwald & Schwarz, 2015). A high exposition leads by such dynamic impact characteristics to higher loads on the buildings. With respect to these dynamic impacts especially the legitimation of the replacement of mean water level for some calculated percentiles with the exposition classes is unclear. Is there really a meaningful correlation?

It could be not expected, that these complex topic can be analysed in a really detailed form from a limited study of 96 damage cases. Therefore is more comprehensive data base necessary. But after a major revision of this paper and its extension to a research paper we can expect more detailed insights in the topic. I look forward to the further progress of the work.

Best regards

Literature:

Grünthal, G. (ed.), Musson, R., Schwarz, J., Stucchi, M. (1998): European Macroseismic Scale 1998. Cahiers de Centre Européen de Géodynamique et de Séismologie, Volume 15, Luxembourg)

Maiwald, H., Schwarz, J. (2015): Damage And Loss Prognosis Tools Correlating Flood Action And Building's Resistance-type Parameters, International Journal of Safety and

Security Engineering, Volume 5 (2015), Issue 3, 222 - 250