



EGUsphere, author comment AC1
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Reply on RC1

Michael Dietze et al.

Author comment on "More than heavy rain turning into fast-flowing water – a landscape perspective on the 2021 Eifel floods" by Michael Dietze et al., EGU sphere,
<https://doi.org/10.5194/egusphere-2022-7-AC1>, 2022

We thank all three referees for assessing the manuscript and the constructive and thought-provoking suggestions. We have considered needed and valuable suggestions, and explain in this letter where we have implemented changes along with the reason. Please find below the comments and the corresponding replies.

Referee 1

Comment 1.1) This is a laudable article providing new and important background on the geomorphology and environmental conditions that lead to the damages. It is very informative, well written and helpful to national and international scientists. The style is rather descriptive and narrative, but common in certain fields of geomorphology and geography. Maybe a methodology section could help others to understand, how the data and information was retrieved; when, where, by whom etc. As another positive aspect, the text is quite easy to understand for non-specialists, too. Very informative analysis using aerial imagery of the gravel pit in Blessem, too.

Reply 1.1) We appreciate the assessment of the style of the manuscript. Indeed, our implicit aim was to provide a rather descriptive document on the non-hydraulic elements of the flood and make it accessible and exciting especially for non-specialists. Thus, we decisively steered against a heavily data-laden and intense analytical approach. We have added a methods section to allow readers to comprehend better and reproduce the results presented. In this section, we also explicitly explain the narrative and descriptive pitch of the manuscript.

Comment 1.2) Line 17 and other areas (not just the Ahr)

Reply 1.2) We have corrected/generalised/clarified wherever appropriate.

Comment 1.3) Line 18: is it a hazard or rather already a "hazard event" or "process"?

Reply 1.3) Changed to "hazard event"

Comment 1.4) Line 56 explain a bit more, what "is difficult to manage"

Reply 1.4) We removed the equivocal and unnecessary phrase.

Comment 1.4) Line 78 large parts of text seem to be based on the author's field observations and expert experience and knowledge, it seems. It would be helpful for readers to make this more explicit in some sections, such as 78 - 86. Maybe add something such as "we have witnessed at field observations in the Ahr area after the floods" or similar. Some claims without sources are a bit risky, as in Line 86.

Reply 1.4) In the specific case, additional references were added, and the text was clarified to indicate what our assessments are based on and where we suggest rather than deduce. Also, in other cases, we have revised the text to improve the notion of mapping-based implications.

Comment 1.5) Following text: the style is quite descriptive and narrative, as it is common in geomorphology, so I do not criticise it. But at certain claims, some more support could be added, when available. For instance, line 141-142, could you add some more detail such as (oral. com with affected citizens in VILLAGE, DATE...)?

Reply 1.5) We have revised the text to either remove unsupported claims or provide an adequate supporting reference. However, after asking the eye witness, we would be hesitant to reveal the name and position of the contact for privacy reasons, noting that such indications are overall rare cases and if they are used they refer to scientific contact persons rather than inevitably exposed non-scientific people. In any way, if the editor insists on that point, we would revise the text and remove that discussion part. Apart from that one point, the following occasions are now with by additional information (line numbers referring to the initial manuscript version):

- l. 84, increased flashiness through gullying, reference added
- l. 89-92, debris flows contributing woody debris, reference added
- l. 96, the impact of debris flows on river profile and hydraulic geometry, reference added
- l. 97, clarified that we mapped debris flow source points
- l. 126, overland flow depths needed to entrain logs, reference added
- l. 136, effects of large woody debris-flow, reference added
- l. 145, log jam effects in the main valley referenced
- l. 158, bedrock erosion, clarified that result is based on own mappings

- l. 194, inundation depths, reference added
- l. 236, shear stress, reference added
- l. 256, dam morphology numbers, method added