



EGUsphere, author comment AC2  
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## Reply on RC2

Michael Dietze et al.

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

### Referee 2

Comment 2.1) This is an important, though preliminary, assessment of the non-hydrologic, "landscape", aspects of the July 2015 extreme precipitation event in the Ahrtal and Rhein-Erft region in Germany. The work provides an important complement to purely meteorological and hydrological studies. The investigation is preliminary in the sense that it based on exemplary observations and does not attempt a full systematic recording of landscape effects, but rather tries to identify and describe a few "typical" examples illustrating a couple of process features. In this spirit the publication provides a valuable entry point for more systematic investigations and is certainly a valuable contribution worth publishing.

Reply 2.1) We appreciate the assessment of the style of the manuscript. As pointed out in our response to referee 1 (reply 1.1), we decisively structured and designed the text that way, a point which is now explicitly mentioned at the start of the added methods section.

Comment 2.2) However, the authors, even in their preliminary approach, might provide some thoughts and further information on at least two respects: Lines 286-289: "To overcome this systematic shortcoming, other systems need to be implemented, systems that are able to collect distributed multivariate data at high temporal resolution and that are not endangered by hostile flood conditions. Instead of just the main channel, such high quality flood related process information should also be available for headwater regions, where the 2021 flood gained its momentum and non-linearity." – While this is without doubt a valid conclusion, the authors should offer at least some preliminary ideas on if and how they believe this could be achieved in terms of feasible methodological and

technical approaches. What system might be envisaged? What type of parameters might be recorded? Where do we have technical/organizational solutions? How might these be integrated into next generation models and risk management? – Not a systematic exploration (which would be beyond the scope of the paper), but a couple of ideas.

Reply 2.2) Indeed, this is correct. We have added a short description of and reference to one such possible approach.

Comment 2.3) 2. Line 195: In terms of past events the authors just mention the 2006 and 2013 events, whose intensities have considerably below the 2021 event. The authors should at least give a reason why they don't make use the information on the larger events in the Ahrtal in 2010 and particularly 1804 which have been closer to 2021 with respect to intensity, and for which there is quite some documentation. The question on if and how to use, or not to use, this type of historical information (even if the corresponding report of course don't reach today's standards and the environmental and infrastructural was different), should be discussed at least shortly.

Reply 2.3) This is a valid and essential point. We have now addressed why we did (and do) not include the 1804 event in our discussion. The main point is the different land-use and settlement arrangements in the Ahr valley some 220 years ago. As for the 2010 event, there were simply no investigations performed by the group used in the reference. Hence, we acknowledge the critical referee note and explain the inclusion and exclusion of the respective events.

Comment 2.4) In addition, a detail comments concerns statement in lines 18-20. I wonder if nothing beyond "media report" can be cited with respect e.g. to the statement that "hydraulic models underpredicted the actual flood wave...". The authors might try to list some more solid references for this important statement than just media reports.

Reply 2.4) We clarified that sentence. Our reference to media reports was not concerning hydraulic models or mitigation efforts but just on the media attention that was given to the flood evolution itself.