EGUsphere, referee comment RC2
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Comment on egusphere-2022-1297

Adam Emmer (Referee)

Referee comment on "Debris-flow surges of a very active alpine torrent: a field database" by Suzanne Lapillonne et al., EGUsphere,
https://doi.org/10.5194/egusphere-2022-1297-RC2, 2023

This study presents the results of 10 years of debris flow monitoring in Real catchment, SE France. Presented data are original and novel and have potential to be further exploited, especially in DF modelling studies where physical parameters need to be defined. The authors mention that they present a 'protocol' to analyze DF but I don't see that clearly in present structure of the study (or what do you actually mean by 'protocol'? is it a methodology how you prepare Table S1? maybe a flowchart figure could help to understand that; please clarify or consider re-framing). Apart from that framing issue, I recommend some additions (see details below) and I have a couple of comments:

L28-30: apart from scientific publications, I wonder whether the DRR authorities or other authorities in charge of DF management / monitoring collect and could provide more data?

L52-54: does this open access database already exist? Is it planned to be created? How would you motivate people to contribute their data?

L57: in a catchment

L62: is this your 'protocol'? if so, please name it accordingly (please also consider visualization of individual steps in a flowchart figure; see above)

L89: please provide a reference to this hypothesis

L89: Focusing on data processing

L100-103: is this seismic signal analysis something you actually used and presented in the results of your study? If not, it should be removed from Materials and Methods section

Fig. 2: please clarify what is the use of geophone data in your study? How does it contribute to summarizing Table S1

L141-150: I don't understand what you mean here; if you aim at presenting widely-applicable methodology (protocol), you should be as instructive as possible

Fig. 3: is dotted red line for max (isn't it rather form min) and vice versa?

L151: please consider separate ‘study area’ section with more details on general physical geographical setting

Fig. 5: please consider adding information about elevation (basic contour lines)

L178-179: not clear, please clarify what you did at this step?

L181: I don’t understand point (ii) -in Table S1, you present rainfall data with precision to 1 decimal place

L184: I suggest to consider re-naming this section (e.g. observed DF, or similar)

L185: how do you defined ‘significant’ evet? Is this where the seismic signal comes into play? Please clarify

L190: how do you know there was natural variability if the measurements didn’t work?

L202: please unify Froude numbers to L194

Fig. 6: does it make sense to plot measurements from three monitoring stations in one curve? Considering erosion / depositional processes on a way, I suggest plotting separate curves for individual monitoring stations

Fig. 7: what is the reason for plotting these values? Would you expect correlation or causality? I suggest you to quantify possible correlations.

L212: lack of trend or no correlation?

L218: this value is beyond what is shown in Fig 7a (max 2 000 m3/km2); please check

L243: viscosity varies

L245-247: this is not clear to me, please reword this sentence

L256: there is no part b-c in Fig. 1

L259-271: I’m not sure I get what you want to say here

L272: insights from multitemporal high-resolution images might help to answer some of the remaining questions raised in this section (e.g., a remobilization of material deposited by previous event(s))

L297-298: see above

L312: ranges of what?

L321: what do you mean by ‘proof of concept for data processing?’; were there any doubts about it?

L323: in the paper, you don’t say much about how this collaboration and common database should like

L329: your data are site-specific rather than representative

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To sum up, some interesting field data are presented and I recommend acceptance of this study as soon as some moderate revisions are made.