

Interactive comment on “Meteorology triggering factors analysis for rainfall induced hydrogeological events in alpine region” by Andrea Abbate et al.

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Received and published: 26 November 2020

Dear authors,

I think your research is interesting and valuable for the hydro-geological research community especially those who are analyzing events in the Alpine region. However I do not see that your manuscript being formulated explicitly enough to emphasize such value of forensic event analysis, despite the lack of novelty in the methodology. I would suggest to reformulate the Introduction (and abstract) and the conclusion to include more discussion on your analysis limitations as well and the outlook to further improve such kind of forensic analysis.

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Some specific comments: figure 5, label of event (DATA), what is the value after comma? Also I think DATA is better called 'observation'.

table 1, estimated affected area (km²) is this the affected area based on the disaster extent or the rainfall extent? In this case rainfall spatial extent may be much smaller than the disaster extent and the other way around, as surface processes and effective rainfall intensity may be pose as a dominant role.

For discussion: As some of the rainfall events may be small in spatial extent but intense within sub-daily duration, can this characteristics be captured by the coarse resolution reanalysis, and the possibly sparse rainfall gauges data? Follow up to this, I think it would also be interesting to look at the antecedent soil moisture (e.g. implied by antecedent precipitation) prior to the events, as the saturation level of the soil easily trigger intense surface runoff in spite of the moderate rainfall, as often seen in flash floods. That said, I also think the paper does not sufficiently mention the contributing factors of hydrological and surface processes, as the lack of such can also mislead the use of 'meteorological only' analysis.

Good luck and keep up the good work.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2020-118>, 2020.

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