

## ***Interactive comment on “Hydrological control of large hurricane-induced lahars: evidences from rainfall, seismic and video monitoring” by Lucia Capra et al.***

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Re: NHES 2017-354

Dear Dr Capra

I have now had the opportunity to complete my review of your manuscript “Hydrological control of large hurricane-induced lahars: evidence from rainfall, seismic and video

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monitoring’ submitted to the journal NHES. Overall I find this to be an interesting paper suitable for inclusion in the journal. I have made numerous annotations on an attached hardcopy of the manuscript, mainly related to matters of English style and grammar, in addition to the following numbered points. More clarification is needed on the nature of the rainfall-runoff simulation model used.

0. There is no mention of the catchment rainfall-runoff model simulations in the title of the paper, yet these are a significant part of the manuscript. 1. How do you define lahar size? By peak discharge, and if so where? Or by peak seismic amplitude by using this as a proxy for lahar volumetric discharge, even though the seismic energy output of a lahar is a function of many factors including volumetric discharge, sediment concentration and sediment grain-size distribution. 2. This sentence is unclear, there appear to be some key words missing. Some kind of couple catchment rainfall-runoff simulation model is being invoked. 3. Hurricanes and cyclones are not globally distributed. 3A. Mt Ruapehu is not a tropical volcano, despite its rich rain-triggered lahar record. 4. Insert the full date. 6. Insert the exact date. The Fiestas Patria will have no meaning outside of Mexico. 6A. Move the underlined text up to the \*. 7. This sentence reads like there are three zones, unless you are combining the channel and terraces into one. Clarify please. 7A. Move this sentence to line 173. 8. Move the underlined text down to line 316. 9. Move the indicated block of text to line 316 before the insertion (8) above. 10. A critical weakness of using the 40% of total rainfall threshold is that it is difficult to know when this point has been reached when it is still raining, unless you have a great deal of faith in your weather forecasts. Do you have accurate predicted total rainfall and distribution curves for these events that could be run through your simulator and compared with the actual lahar events? 11. This implies that there is no lag time between the peak rainfall intensity measured 6 km away on another volcanic edifice and the arrival of the lahar peak at the detectors. 12. How long does it take to run Flo-2d, could it be run in real-time by feeding in the incoming rainfall intensity data? 13. Clarify. 14. So the simulation cannot duplicate the initial hydrophobic behaviour? 15. I’m assuming that these catchments are ungauged, so there is no way of calibrat-

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ing the simulated discharge produced by the rainfall-runoff routing model? 16. I'm not sure what this third graph c) is showing. 17. Give a little more detail about how this envelope (cm/s) plot is derived. 18. Ignore my scribbles on this figure.

Yours sincerely Dr Vern Manville University of Leeds

Please also note the supplement to this comment:

<https://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2017-354/nhess-2017-354-SC2-supplement.pdf>

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