

## ***Interactive comment on “From examination of natural events a proposal for risk mitigation of lahars by a cellular automata methodology: a case study for Vascún valley, Ecuador” by Valeria Lupiano et al.***

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The paper “From examination of natural events a proposal for risk mitigation of lahars by a cellular automata methodology: a case study for Vascún valley, Ecuador” discusses hazard scenarios involving the presence of Lahars, erosive floods mixing water and pyroclastic deposits, taking advantage from LLUNPIY, a software based on the Macroscopic Cellular Automata (MCA) framework. The authors introduces the Lahars theme and discuss in detail the methodology used (i) to obtain the needed initial conditions from the huge but heterogeneous mass of data, (ii) to obtain the correct parameter

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values and (iii) to evaluate strategies aiming to lower the lahars dangerousness.

The work is professional and well written, it clearly establish its main points, the background is well presented and the methods are adequate to the proposed researches. The overall presentation is well structured, clear and easy to understand by a wide and general audience, the technical language is precise and understandable.

In my opinion the main original parts of the papers resides on the idea of inducing artificially lahars (and performing many simulations for analyzing possible different scenarios in such complex situations) in order to avoid the superposition of different lahars with the same final path in natural events, reducing in such a way their gravity. It is less clear if the authors – in order to achieve such goal – added some suitable feature to the already existing MCA framework (in positive case, the authors should better highlight these new original parts)

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