

## ***Interactive comment on “Earthquake-induced debris flows at Popocatépetl Volcano, Mexico” by Velio Coviello et al.***

**Anonymous Referee #1**

Received and published: 27 August 2020

In this manuscript, the authors analyzed the earthquake-induced landslides/debris flow at Popocatépetl Volcano, Mexico in detail. In the surrounding area of volcano, the general risk is mainly originated from the lahars during the volcano eruption. The mass movement of deposits triggered by earthquake is interesting and could provide some insights to the risk evaluation in the volcano region. Nevertheless, a major improvement is still necessary before its consideration of acceptance on evaluation of its current qualities. First of all, the title of this manuscript is somewhat confusing. The mass flow directly triggered by earthquake is slope failure or landslides. Because of the mass saturated with water or added by water, it could transfer into the debris flow and move further. In current status, the authors didn't clearly describe how the landslide transfer to debris flow. The reason why it can move a long distance came from the initial

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acceleration by earthquake or the abundant water content? Thus, the authors should add a new section to clearly introduce the transition process. For this manuscript, the detailed investigation and analysis is an important factor that the readers would be interested. Thus, it is encouraged to provided the original data which the other researchers could conveniently use, especially the initial mass and deposit mass range and depth etc. (KML or ascii files would be excellent) Please rewrite the abstract and clearly describe the findings and interesting point. Now too much detailed description. Line 20: The debris flows were highly viscous and contained abundant large woods (about 10<sup>5</sup>cubic meter). This sentence is not clear. The volume refers to the debris flow or woods? The quality of figure 1 a, b is not good. Please try to improve the their performance. The slope direction with woods of the figure 12(2) would be better to exchange.

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Interactive comment on Earth Surf. Dynam. Discuss., <https://doi.org/10.5194/esurf-2020-36>, 2020.

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