



Interactive comment on “Vulnerability and Site Effects in Earthquake Disasters in Armenia (Colombia). II – Observed Damages and Vulnerability” by Francisco J. Chávez-García et al.

Francesco Panzera (Referee)

francesco.panzera@sed.ethz.ch

Received and published: 30 May 2021

The manuscript “Vulnerability and Site Effects in Earthquake Disasters in Armenia (Colombia). II – Observed Damages and Vulnerability” by Chávez-García et al. summarize the damage studies performed in Armenia (Colombia) trying to explain the main factors which played a role in the damage distribution. The manuscript can be accepted after minor revisions.

Francesco Panzera

Comments: Line 57: add “of buildings” after “number of storeys and construction age”

Interactive
comment

Line 82: add some worldwide references. I suggest: Midorikawa (2002) *Ann. Geophys.* 45 (6), 769–778 Sbarra et al (2012) <https://doi.org/10.1007/s11069-012-0085-9> Panzera et al. (2018) <https://doi.org/10.1016/j.enggeo.2018.04.014> Panzera et al. (2021) <https://doi.org/10.1007/s10950-020-09962-z>; Line 86: change “relatively small” with “moderate earthquake” or “strong earthquake”. Line 184: “the geological formations that can be found in the city”, please specify the used geologic map scale. General comment: The authors excluded completely the influence of site effects, but in my opinion some sentences on the fundamental periods of buildings in Armenia should be discussed to completely exclude resonance effects or to verify that the combination of vulnerability of buildings and site effects enhanced the damage. The fundamental frequencies observed in the area (2-3 Hz) by Chávez-García et al. (2018) for site effects could interact with buildings having 2-5 storeys. This doesn't mean that the damage are mainly due to site effects, but it is possible that in some areas they contributed to damage (see the example of Carlenini and Lentini Panzera et al. (2018)).

Interactive comment on *Nat. Hazards Earth Syst. Sci. Discuss.*, <https://doi.org/10.5194/nhess-2020-385>, 2020.

[Printer-friendly version](#)

[Discussion paper](#)