

Interactive comment on “Review of fragility analyses for major building types in China with new implications for intensity-PGA relation development” by Danhua Xin et al.

Anonymous Referee #2

Received and published: 8 November 2019

This is a very interesting paper tying the fragility curves to vulnerability and through this get a better correlation into conversion of Intensities to PGA. The authors reviewed a large number of data published on Chinese earthquakes since 1975 for two main typologies: RC and Masonry: 69 in terms of Chinese Intensity Scale and 18 on PGA. They used fragility curves obtained from experimental (in function of INT) and from numerical developments (in function of PGA) to obtain a conversion between INT vs PGA. To expand the results obtained to other places around the World, and not only to the Chinese construction, in a tentative to propose a world-wide conversion, they compare the results with other proposals in Europe and US (PERPETUATE; SHARE; GEM; etc.) But before I get convinced with the results presented and consequently to accept

C1

the paper I need a response to a few important issues. 1- Construction in China is very different from other regions. So the comparison with other regions is very difficult to accept. 2- Only two Types RC and Masonry (sub-divided into two sub classes) are considered. EMS-98 has many more! 3- The final proposal (TableB2) for each Intensity gets an interval 1:2 and no results for I>X. Other studies show similar intervals but with centre value slightly deviated. 4- Errors on establishing the D1 to D4 or D5 are full of uncertainties and so I do not know if bringing the fragilities into place is reducing the error. 5- The Indicator with people and bicycles is very interesting especially for China as there is much traffic with bikes. For other countries unfortunately, the situation is still too far! Few Problems to correct: 1- There should be a Figure representing graphically the results in Table B2 2- Formula (5) is very old in California 3- Fig 3 and 4 should have line to be more understandable. 4- Fig 5 and 5 should have line and same colour. 5- Fig A1 could be merged with Fig 7 and Fig A2 with Fig 8. 6- Figs A6 and A7 are impossible to read! Title could be slightly changed, inverting the order of ideas.

I found several inconsistencies in the Reference List Attached Doc (References Corrections)

Please also note the supplement to this comment:

<https://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2019-195/nhess-2019-195-RC2-supplement.pdf>

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2019-195>, 2019.

C2