

## ***Interactive comment on “Evaluating Simplified Methods for Liquefaction Assessment for Loss Estimation” by Indranil Kongar et al.***

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Reply to comments from referee 2 (by comment letter)

This is a review of "Evaluating Simplified Methods for Liquefaction Assessment for Loss Estimation". This paper is overall well written, interesting, and needing only minor revisions.

We thank the reviewer for his/her confirmation of the quality of the paper and recommendation for publication. Our responses to specific comments are included below.

(a) Abstract. Please put more quantitative description of data/results into the abstract, not just qualitative.

As per the reviewer's suggestion, we shall add more quantitative information to the

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abstract relating to data and comparison of model performance

(b) Section 1. Although there is a good 'motivation' and letting the reader know how the paper is organized in the last paragraph, can you refer to what the paper is about early on? Perhaps in or at the end of the paragraph a sentence that says "Here we investigate ....".

We shall add a description of the paper's topic at the end of the first paragraph

(c) Prediction. Please evaluate throughout the use of the word prediction (time, place, magnitude) if that is meant, or probabilistic forecasting. If prediction really is meant, then make this clear why, and to what degree.

We acknowledge that the use of the word 'prediction' may be misleading here. Although the Hazus and Zhu models estimate liquefaction probabilities, the LPI models do not and furthermore, the final outputs being compared are deterministic estimates of liquefaction occurrence. Therefore 'probabilistic forecast' is not necessarily appropriate here. The model outputs are deterministic estimates of liquefaction occurrence conditional on an earthquake of specified place and magnitude having occurred and so a term of that nature, e.g. conditional estimate, may be more appropriate.

(d) Testing. I am not a fan of the use of the word 'testing' in the natural hazard community. See the following paper for why: [http://www.nssl.noaa.gov/users/brooks/public\\_html/feda/papers/Oreskes1.pdf](http://www.nssl.noaa.gov/users/brooks/public_html/feda/papers/Oreskes1.pdf)

We thank the reviewer for pointing us in the direction of this interesting and insightful article. We are happy to remove the word 'testing' and replace with an alternative term such as 'evaluation' or 'comparison' or similar

(e) Where possible, avoid acronyms in Figure captions/Table headers (or spell them out the first time) to make the paper a tad less 'jargon' rich. Figures and tables should be as stand-alone as possible so if someone uses them (without the paper) one can tell from the figure caption/table header what it is about. Particularly important for this

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is your figure comparing all the methods—you need to then state what all the acronyms mean.

We acknowledge that the paper does contain a large number of acronyms and are happy to add more information to table and figure captions

(f) Would it be possible to provide an overview table of all the acronyms, and what data is being put into each one? This would be a nice 'tutorial' table that is more likely to be cited by people.

We are not clear what the reviewer means by this since a list of acronyms and list of variables are already provided in Tables 1 and 2 respectively. If the reviewer feels that there are specific acronyms that require more detailed explanation, then it would be of assistance if the reviewer could specify which ones

(g) Sensitivity of models to data input. It would be very nice to see more on how much the outputs (what you call prediction) are sensitive to slight changes in the inputs. Again, a comparison between different types of liquefaction models would be very useful.

We are happy to carry out some sensitivity testing as suggested by the reviewer. A particularly useful sensitivity test may involve variation of shear wave velocity, since this is an input that is accompanied by significant uncertainty. However due to the number of models tested in this paper, we believe it is appropriate to only carry out the sensitivity testing for a selection of the best performing models (e.g. the two best models or similar) and we will add this to the revised manuscript

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