



Interactive  
Comment

## ***Interactive comment on “A probabilistic tsunami hazard assessment for Indonesia” by N. Horspool et al.***

**N. Horspool et al.**

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Dear Reviewer,

Firstly, thank you for your constructive feedback on our paper. We are grateful for your efforts and your suggestions will help improve the manuscript.

Reply to Comments:

- 1) Accessibility of Thio (2012) This technical document is not publicly available at present. However, we will make this accessible on the web and provide a URL link to this in the reference list.
- 2) Aleatory uncertainty and independence of  $\sigma$ . The approach to estimate

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$\sigma_m$  was focussed on model uncertainty derived from variable grid resolutions. To this end,  $\sigma_d$  is independent of  $\sigma_d$  and  $\sigma_s$ . We acknowledge that there are other sources of "modelling" uncertainty, but these have not been included in this analysis and are an area that needs more research.

3) Tsunami earthquakes in PTHA. We do not explicitly consider tsunami earthquakes in the PTHA. This is an area for future research. We will include a note on this in the limitations section.

4) Logic tree and epistemic uncertainty The approach used does not generate an event-set for each branch of the logic tree. Rather, we generate a list of all possible magnitudes for a given fault source from the minimum magnitude to the maximum magnitude in the logic tree. Then for all branches of the logic tree we calculate the rates for each magnitude for minMag to maxMag of that branch (equivalent to generating a synthetic catalogue). This is done for all branches. Finally the weighted annual rates for each magnitude are then calculated. The next step is to calculate the number of ruptures for each magnitude for a given fault. This is constrained by the rupture geometry (magnitude-rupture area scaling law) and the size of the unit-sources. Finally, each possible rupture for a given magnitude is assigned a weighted probability :  $\text{totalRate}/N$  where N is the number of ruptures for that magnitude.

We will include a more detailed description of this method.

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 3423, 2014.

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