

## ***Interactive comment on “Uncovering the 2010 Haiti earthquake death toll” by J. E. Daniell et al.***

**J. E. Daniell et al.**

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In line with the comments of the reviewer, significant changes and revisions have been made to the manuscript. The reviewer has made many great comments which has aided us to focus the paper better giving a clearer and more defined result. We thank the reviewer for his time and effort. The following notes are made in line with each paragraph of the reviewers notes. P2: The methodology has now been simplified with less assumptions being made along the process. The studies of authors, and traditional casualty estimation methodologies are combined with the final MTPTC data, which removes the original assumptions and need for building damage assumptions. Population is as detailed via census information and ranges of occupancy are presented in line with sound methodologies such as Coburn and Spence (1992), Haitian living patterns and the Jaiswal and Wald (2010) models. P3: Agreed. Having removed the

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casualty data for a previous version of the paper, this has now been brought in, and the various methodologies added into the analysis.

Critical comment 1: P1: Strongly agree. This has been adjusted in line with your comments. The damage ratios of the MTPTC study have now been used in combination with the tagging system. Additional comments have been made in the text.

P2: this methodology has now been removed as such given the final data being available.

P3: We hope that this is now much clearer. The number of tagged buildings is correlated to the population to check the total.

P4: We agree, and have removed the review of the Melissen study in terms of the numbers as discussed, as you said, there were too many assumptions that we made in our estimation. The Melissen study however, although not peer-reviewed is one of the most important studies made, if not the most important. He went around for many weeks after the earthquake collecting data and checked death tolls. This along with the household surveys of Kolbe et al., and Schwartz et al., are really the only possible ones to use and a great deal of effort was made to collect the data, given that the SNGRD estimates are unexplained and were calculated not counted in most cases. The study has been used by many authors (Ambraseys and Bilham, 2011, Hou and Shi 2011, among others) in journals such as Nature.

P5: This statement has been removed. The fatality rate per structure types and occupancy are now within the methodology.

Comment 2: Yes. The criticisms have been removed and the China/Haiti discussion has been removed. In the future this will attempt to be quantified, but will be left out of this paper. We agree that these criticisms in many cases do not to be included in such a paper as the main numbers and the checking of all available data has been the aim of this paper.

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Comment 3: All digits have been moved to 1000s except where exact values have been calculated by another survey and are needed in the description. A note has been made in the conclusion. You are right that the precision gave a false view of the estimates as the death toll will never be there.

Comment 4: The title has been changed, and the discussion comments removed as they are not needed as you said. The P1922 methodology has been removed.

Comment 5: This comment was not intended to be in bad taste or was naïve. The comments of the government have been in terms of counted bodies over the period, and thus to comment on counted bodies per day was in direct agreement with their statements. There is little evidence to support that bodies were counted however through the period of analysis. We agree therefore, that there are other reasons for such an increase, and thus this has simply been removed, and the 93,000 increase is simply stated.

Comment 6: Removed. As you said, this is difficult to understand. It would likely be confused with the “top-down” collapse and “bottom-up” collapse of buildings definitions.

Comment 7: A better description has now been provided, as the remote sensing work, although used was not the central point of our work of determining deaths tolls.

Comment 8: Removed.

Editorial Notes: 1. Changed to These estimated death tolls, rather than these. 2. Changed. 3. Changed. 4. Yes. 5. Changed 6. Changed 7. Changed. 8. Melissen 2010 discussion are in the other reviewer comments and above. A web link has been added. 9. Changed 10. Changed.

Thank you once again for the detailed comments, it has made the direction of the paper better defined, and we believe bringing the casualty estimation methodologies in line with the MTPTC actual data rather than a pre-MTPTC assessment gives a much more sound and simpler methodology.

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 1, 1913, 2013.

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