21 July 2013

Review of Daniell et al. (2013).

My apologies for the delay on this review.

The subject under study, examining the Haiti earthquake death toll, is one that is certainly worthy of research, and one that needs to be much better (in general for earthquakes) explored in the literature, particularly in terms of uncertainties involved with different methods.

The paper is broadly fluid in its style of writing (although a bit wordy in places, with sometimes inexact language used). There are several medium/major issues resulting in a 'major' rewrite, but one that will hopefully result in publication, as it will ultimately provide a good addition to the peer-review literature on how fatalities are estimated as the result of severe natural disasters.

My comments (in no order of importance) are as follows:

- **Abstract**, Lines 9 to 10: This is a sloppy way of expressing numbers and leads to fundamental confusion in your conclusion. In your conclusions, you state that a value of between 127,000 and 167,000 is reasonable, with a preferred value of 137,000. But, I had taken this statement here to read (literally) half of 316,000 with associated error bars, i.e. 158,000+-137,000, or 21,000 to 295,000.
- **References. MAJOR GENERAL ITEM.** P. 1915, Lines 5 to 17, 20-29, many other places: Here and throughout the text that there are many 'unsubstantiated' statements made. In other words, facts and information that have no real in-text citations what the evidence is that resulted in these statements. Would the authors go completely through the text and ensure that ALL major facts/information in every sentence that are not outcomes of their analysis, are appropriately cited, with the source of the evidence clear.
- **Section 1. Introduction.** (a) In the introduction, you never actually tell us what the paper will be about. It is inferred. Perhaps directly stating somewhere, "In this paper we will examine…" (b) Somewhere in the introduction (probably at the end) there should be a paragraph as to how the paper will be organized, referring to each section. "This paper will first described the methodology to be applied (Section 2), then …. (Section 3), followed by …." (c) Since spatial locations are being discussed in the introduction, it might be appropriate to add a figure of the regional/local areas, so people can visually see where the place names are located.
- **Acronyms.** Please ensure that all acronyms are appropriately introduced. When I arrived at MTPTC at the beginning of Section 2, I had no idea what it meant. Perhaps in this case, it should be Ministry of Public Works Transport and Communications (Ministère des Travaux Publics Transports et Communications, MTPTC, 2009), which then gives the meaning, and a reference. Please go through and ensure that all acronyms are defined when first used, and consider if you need a table of acronyms. For any GOVERNMENT SPECIFIC acronyms (e.g., MTPTC) it needs to be made clear in the reference itself (and possibly the text) which country it is for. For MTPTC, then, it would be Haiti.
- **Background Section. MAJOR ITEM.** I really felt like jumping from the introduction to the methodology, that I had somehow missed a major section, which would be one describing 'all' methods currently in use to estimate fatalities, their strengths and weaknesses (in particular uncertainties), and then going on in the 'next' section after that to further describe

the specifics of your methodology. I did not feel like I could appropriately evaluate your method with respect to other methods currently in use.

- **Language used.** Language used is generally fluid, but sometimes can be 'inexact' and unsubstantiated. So for example, avoid words (in general, not just here) like (p. 1916, line 12) "A realistic and justified range" as you cannot substantiate this claim. Be very careful about statements that do not have evidence, and that cannot be unsubstantiated, particularly those that are narrative in nature.
- **Section 3. Post-earthquake damage in Haiti.** (a) The second paragraph probably should be put at the beginning of this section, as it describes CATDAT. (b) Give us some idea at the beginning of this section what will be discussed and how it will be organized. (b) What are the limitations in the tagging used? (c) A lot of place names are discussed, therefore a location map (see above, introduction comments) is becoming more important. (d) I became almost lost in all the acronyms. Think about how to deal with (? A table of acronyms). (e) PRECISION. In some places you have values like "105 369 buildings" in other places you round off so have "400 000 buildings". What level of precision is going to be reported and used? (f) p. 1918 line 4. Should "Delmas93" be "Delmas 93"? (g) Final sentence. "It is shown that…" [who has shown this?] (h) Overall: I did not find this an easy or necessarily believable section in terms of methods used, past information discussed, and conclusions made. Think about how to organize this data (in addition to the table) to better help the reader through the large set of numbers.
- **Section 4. Death toll Estimates.** (a) This is a long section. Subdivide it with appropriate subheaders. (b) Let us know at the beginning what the section is about (it is a very abrupt beginning) and how it will be organized). (c) Again, many unsubstantiated statements where information (e.g. p. 1920, lines 2 to 5) is presented, but no references. (d) In section 4, at the beginning, is the first place that the number of 316,000 deaths is presented. But, in this sentence, it states "the highest consistent bound estimate of 316,000 was presented". This is contrasted with the lower bound estimate of 52,000 to 92,000. Give some idea to the reader these numbers are now going to be explored in depth further on in the section, or they are left 'hanging'. (e) I found this a difficult section to read, in terms of some of the continuity and organization. So for example, we read about 316,000 fatalities p. 1920 Line 2, then have a section that is sort of an interlude, with the reader not clear the relationship to the first sentence, then we come back to death tolls, but now we have "222 570 or 316 000", with the reader not at all sure where the value of 222 570 comes from. (f) I arrived at the end of the logic tree weighting analysis, and it felt like a very 'black box' approach, subject to so many items. So for example, if one were to change the weightings slightly (do a sensitivity analysis) there would be a different result, and this is in no way quantified. (g) Table 4. I recommend final line reads "Haiti Death Toll using logic tree weighting". Otherwise, you are implying there is some sort of 'truth' or 'benchmark', and that this line is that benchmark (we will never know the truth here).
- **Section 5. Historical difficulties.** (a) Again, consider subheadings and please tell us at the beginning what the section is about and how it will be organized. (b) Be careful (see comments above) here and the conclusions, not to make unsubstantiated narrative comments.
- **Uncertainties, limitations of models. MAJOR GENERAL ITEM.** This has been mentioned already, but I bring it in explicitly here. I arrived at the end of the paper, unsure of all the methods out there, and then a real comparison of the different methods (for evaluating fatalities) in terms of uncertainties, limitations of the models. In particularly, I didn't know how your model compares with the others, and what the specific uncertainties or sensitivities are in your model.