Review of Gehl et al. manuscript: 'Potential and limitations of risk scenario tools in volcanic areas through an example in Mount Cameroon'

Overall, I think this paper offers a well written and interesting approach that identifies some of the limitations and uncertainties associated with quantitative risk assessment. In particular, it fits nicely within the aims of the MIA-VITA special issue. I have a few detailed comments beyond those provided to the authors in the initial review, prior to the paper being published for open discussion.

Main comments:

- The intensity bins are mentioned briefly near the start and the reader is deferred to Neri et al., same issue. These bins, the damage classes and the relationship between the two is fundamental within the model and it is not clear how these have been established – could a brief description of the data sources and approaches be included here so that the paper can stand alone?
- As a follow on point, the discrete damage states (e.g. P1091 L13) appear to differ by approach and asset (Fig 4, Table 2), why? And based on what data? This is where the above would be useful.
- The building types are presumably divided according to their potential vulnerability to different volcanic hazards, is this also true for the different crop types? And if so, on what basis, using what vulnerability data, etc?
- To make this a repeatable tool it would be useful to know the sources of the data, even if it is that GIS files were provided from the local authorities. Alternatively, if any data manipulation was carried out, e.g. from NDVI or satellite images, this would be useful to know for future work.
- Why do the authors focus on the first of the three eruption scenarios? A little more background here may be useful – is it the most likely? The worst considered? A recent event?
- Figure 4 shows that ui and uj are fundamental in assigning the binary damage states 0 and 1, but it isn't clear where these values came from? Do they represent an arbitrary probability or intensity threshold or are they based on some information? It would be good if this could be made clearer somewhere either in the caption or text.
- If the tool is to be made freely available, for example on VHub, this should be stated.

Specific comments:

- P1084 L11: Does 'series of complete scenarios' mean from hazard through to risk? Or do the authors mean a range of risk scenarios? I'm guessing the latter but it is not overly clear to me from the sentence, this could be clarified.
- P1084 L23: Zuccaro et al., 2008 is probably a better reference than Spence et al., 2005b in this context as the authors are discussing risk assessment tools specifically.
- P1085 L5-7: Spence et al., 2008 do in act consider the interdependence of the health care system, Zuccaro et al., 2008 did not.
- P1088 L24-26: I don't fully understand this sentence? I am guessing it means the attributes were represented as a proportion of the overall cell size, this could be clearer I think.
- P1090 L11: Reference Neri et al. as a reminder for the reader after 'intensity levels'?
- P1092 L16-18: Zuccaro et al., 2008 do propose such fragility models so this is not a fair statement.
- P1095 L13-14: Could the authors put the Cameroon line and Fako district on one of the figures? Or else reference the locations with respect to the volcano summit and map that? It would make visualising the scenario much easier.

- P1096 L17: As we can't access the BRGM report of Thierry et al. 2006 could the authors provide a more accessible reference? Or failing that, perhaps provide a brief explanation of source of the value, for example the average density of the ? eruption tephra?
- P1098 L2-4: I don't fully understand how the damage tables (Table 2) are almost identical? In what way?
- P1099 L19-21: Where are the reconstruction costs presented? I don't believe these are in this paper (although they would be interesting!)
- P1100 L12: and famine, 'although this isn't presented here'?

Figures:
- Fig 1: Is 'stakes' the right word? Asset may be more appropriate and typical terminology as used on P1086.
- Fig 2: Spell out UML so that the caption can stand alone from the text
- Fig 4: This is quite a complex diagram, which I think could benefit from a more detailed caption and/or further clarification in the text. A few points:
  - …where, 'by way of example,' the edge…
  - …and the cell 'a probabilistic model for which the cell' contains…
  - After 'No collapse' and 'Collapse' it would be useful to put '(damage state 0)' and '(damage state 1)', respectively.
  - For the damage tables, it is not clear how these were assigned – I had thought the damage state 'bins' should be uniform across approaches, hazards and phenomena but they aren't here. Could it be noted in the caption or text that they may vary by the above? (and again based on what?)
- Fig 7: Put the Mount Cameroon summit on for reference? And as the vast majority of cells have population density lower than 2699, would the key not be more informative if it represented the population densities in quartiles or similar. It is not immediately clear why the thresholds used were chosen, they are not very helpful.
- Fig 10: Could the authors expand TAZ and also put on the Cameroon line and Fako district for reference?
- Fig 11: I don't think this is referred to in the text?

Typographic/grammar errors:

- P1085 L21: 'at' Mount Cameroon.
- P1089 L2: remove 'it is'
- P1089 L13: I'm not sure what is meant by 'prevision'?
- P1090 L11: Use 'the user' instead of 'indeed'?
- P1091 L9-10: Elements and phenomena should be singular.
- P1093 L24: Data are plural.
- P1095 L7: 'to the south of the volcano'
- P1095 L8: Scenario should be plural.
- P1096 L5-6: intensity threshold 'ranges'? 'within' which?
- P1096 L9: of roof collapse 'of critical facilities'
- P1098 L1-2: This sentence doesn't make sense to me, is confronted the right word?
- P1098 L 25: Perhaps common damage states would be more appropriate for this study?
- P1099 L11: depend 'on'
- P1099 L19: parcel 'of land'
- P1100 L20: the 'potential' scale of the events
- P1101 L12: 'different' instead of 'all sorts o