Natural Hazards
and Earth System
Sciences
Discussions

Interactive comment on "The application of Bayesian networks in natural hazard analyses" *by* K. Vogel et al.

Anonymous Referee #2

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Review of "The Application of Bayesian Networks in Natural Hazard Analyses" by Vogel et al.

This is an overall interesting subject.

Abstract: Reads more like an introduction. I suggest that you include some of your conclusions here.

1. Introduction. Broadly well written and interesting but (a) Please review your English in the first paragraph. For example "despite of differing" [line 21] becomes "despite differing". The first sentence does not make sense as it is (the "model- and decision theoretic questions"?. (b) I suggest you add in some more in-text citations to substantiate some of your statements in the first three paragraph (you have just one reference),

rather than 'just' have prose. Many of these statements stem from what others have written.

2. Bayesian networks. The audience here is a group of scientists, interested in natural hazards, who might not be necessarily familiar with Bayesian Networks, but want to learn about them. To make this a more widely read paper, I suggest that you take much more care to introduce the intelligent lay-person to the idea and notation of Bayesian Networks, from an intuitive view point, so that they might be able to then read this section. I suggest this include some more illustrations (you do include some), a couple sentences of history (not a complete set of history, you can and do refer to other sources), and most importantly, a table of mathematical notation used in the paper. As it reads now, it is a very jargon rich and mathematics heavy section, aimed at someone who already works with Bayesian Networks. If this is your audience, then probably it is not suitable for NHESS. If instead, you would like to introduce your audience to Bayesian Networks and their use for natural hazards, then please make this section much more accessible.

Sections 3 to 5 (Earthquakes, Floods, Landslides). These are interesting applications (and conclusions) based on the various data sets that you have worked with, and show a substantial amount of work and thought. I would like to see much more depth in describing the data themselves—including the limitations. You already do this in parts, but for instance, I have no feeling for the landsides what they look like (spatially, individually), whether these are historical or recent landslides, the result of specific triggers (earthquakes, rainfall), and if recent landslides, over what years. Whether the data set is 'complete' over time, and whether these are small or large landslides. I did find some 'year' information in the Table 6, but it is definitely buried. In each case, if you are going to investigate a hazard, make sure that you do not gloss over the details of the data itself, and ensure a reader understands enough about the data so that when you examine it, they can understand where you are headed.

In summary, I believe this needs a major draft. A lot of research is covered, it is inter-

esting, but key items feel like they are being glossed over, such that an independent researcher would not be able to repeat key steps, and even without repeating key steps, it is difficult to understand in places the breadth of what is being done due to somewhat sweeping statements.

Minor points: (a) Please ensure that all maps have scales and N arrows. (b) Figure captions in some cases need to be much more complete (including source of data/figures, enough text so one does not have to go to the main text to figure out what they are about).

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