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Interactive comment on "Natural hazard fatalities in Switzerland from 1946 to 2015" *by* A. Badoux et al.

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Review of

Natural Hazard Fatalities in Switzerland from 1946 to 2015 nhess-2016-232

by Badoux, Andres, Techel, and Hegg 05 September 2016

General comments

I have reviewed the paper nhess-2016-232 "Natural Hazard Fatalities in Switzerland from 1946 to 2015" by Badoux et al. for publication in Natural Hazards and Earth System Sciences. This paper summarizes a wide variety of Swiss natural hazards since 1946, and also includes context on these phenomena around the world over many prior years. There are few such extensive, useful, and well-presented results

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in this topic area. My particular interest is in the lightning area, and that topic is an emphasis of mine as noted below.

One of the general results is that younger males tend to be the most frequent victims of all types of natural disasters. It is mentioned that work scenarios are the dominant issue, but it is also stated that young males tend to be more risk-takers (line 559). It is apparent from other lightning studies that risk taking is more likely to be the dominant issue in the United States, at least.

Another comment is that many databases of natural hazards start the threshold at ten people affected per event. Instead, many phenomena, including lightning, impact one person at a time. The large number of such single-fatality incidents can exceed the total of ten-plus events. This causes an under-appreciation of several natural hazards in many reporting hazard systems. In fact, such limits affect policy as to what is being warned for the public. This is not an easy issue to resolve, but rightly is identified on line 635 in the paper.

Specific Comments

1. Confusing comments near end: Line 211 states that the lightning total "includes all people who died after being struck by lightning." Tables 1, 2, and 3 show 164 lightning fatalities. However, on page 21, the first paragraph of the Conclusions states that some lightning deaths were not included in the previous data summary. Am I reading this wrong, or has a group been excluded from the preceding results? Do the data presented earlier in the paper not include those in connection with high-risk sports and other situations (line 718)? If so, what is the real number of lightning fatalities Switzerland, or is this an extra comment that doesn't affect the earlier numbers?

2. Add global summary of fatality rates: Several lightning fatality studies are referenced starting with line 84. The following summary of national lightning fatality rates was not in the current version of the manuscript since it is quite recent: Holle, R.L., 2016: A summary of recent national-scale lightning fatality studies. Weather, Climate, and

Society, 8, 35-42.

3. Add reference to India fatality study: The manuscript on lines 660 and 665 references a study by Singh and Singh, who found an average of only 159 fatalities per year within India. There has been an additional study by Illiyas et al. who found 1,755 fatalities per year. The latter seems more likely in this very populous country. The reference is: Illiyas, F.T. K. Mohan, S.K. Mani, and A.P. Pradeepkumar, 2014: Lightning risk in India: Challenges in disaster compensation. Economic & Political Weekly, XLIX, 23-27.

4. Effect of buildings: Page 15, line 515 states that the reduction in lightning fatalities is partially due to building and structures attracting lightning. Cloud-to-ground lightning interception by large structures is relatively rare. Instead, it is recommended that the reason is due to more people spending more time inside lightning-safe structures compared with decades ago.

Technical Corrections

–Line 103: The word lightning has an extra e.

–Line 283: Figure 5 referenced here would be easier to read if a log scale were used, since most entries have small numbers.

–Line 729: The word lightning is missing the first n.

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