

Interactive comment on “Natural hazard events affecting transportation networks in Switzerland from 2012 to 2016” by Jérémie Voumard et al.

H. J. Laimer (Referee)

hans-joerg.laimer@oebb.at

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The topic of the paper is definitely important for researchers in the field of applied earth science and construction or traffic engineers: small events are underrepresented in natural hazard research for several reasons but cause ever greater economic losses. The authors are trying to make the scientific community aware of the need to deal with the problem.

Therefore they collected online reports on natural hazard events affecting transportation networks in Switzerland. This approach could certainly be criticised for different reasons as data integrity or completeness, but the authors of course are aware of these problems. I think it is nearly the only way to get fast access to nationwide event data,

C1

particularly since infrastructure operators often have reservations against publishing their data.

The declared objective of the authors is to help decision makers to minimise the impact of natural hazards (l. 83 – 85). I therefore recommend offering some suggestions for ways in which infrastructure operators could be assisted in order to better illustrate the benefit of the new database.

The factors of influence mentioned in the results chapter are not new, however, the paper provides essential statistical proofs!

I see only chapter 4.3.3 - Time of day and hourly distribution rather critically, because the time of event notification very frequently does not match with the real event time.

The reason for the high proportion of landslides on rail tracks can not only be found in bad embankment construction (l. 342 – l. 343). Railways have higher exposure to landslides than other line structures because of their grade limitations. Rail tracks require a balanced gradient ratio, therefore they must be run along the valley sides over far distances. This requires long and steep cut-slopes.

There is a separate chapter 4.5.5 - Deviation length for roads. What about alternative routes for trains? Are there any informations on this issue? I suppose it is very difficult to get appropriate data.

I can hardly believe that highways are proportionally more vulnerable than other roads (l. 364 – 365). Is it not rather the case that small events on minor roads (e. g. non-public forest roads) are underrepresented in the database? The discussion chapter 5.2.1 contains a detailed outline of this problem (in particular l. 580 – 581).

The authors dare to the extremely sensitive subject of damage costs. It is difficult to get reliable data for direct costs, for indirect costs this is an almost impossible task. Costs per square meter (small event 100 m², middle event 200 m², large event 300 m²) might seem unusual to infrastructure operators, but it could be a good approach to gain a

C2

nationwide overview.

The figures are readable and helpful, a clear graphic visualization of the results.

The relevant articles and sources were quoted conscientiously.

-syntax and grammar-

consistent thousands separators (e.g. 5.000) l. 24 ...the database is imperfect because of... l. 48 ...than for... l. 55, l. 58, l. 974 ...Tschögl 2006, Tschögl et al. 2006 l. 269 ...bad weather events l. 297 ...and by the... l. 297 ... precipitation... falls as snow l. 304 ...to occur... l. 316 ... 6 pm? l. 343 ...earthy... unsuitable fill material l. 425... missing punctuation l. 440 – l. 442 and l. 534 – l.537 show a repeated text passage. l. 456...event mass? l. 464...before impacting... l. 539...debris flows l. 603...over the years l. 612...represents a certain l. 618...an impact... l. 631...word repetitions l. 669...without sufficient knowledge of natural hazards l. 693...have such an event database l. 695...Even if... l. 702...depends on... l. 744...railway tracks

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