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Discussions

Interactive comment on "Identification of traffic accident risk-prone areas under low lighting conditions" *by* K. Ivan et al.

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This paper analyses traffic accidents under low lighting conditions of a city in Romania, Cluj-Napoca. Apparently, the results are what one would obviously expect, i.e. during worse lighting conditions there are more accidents than those occuring in normal lighting conditions. However I would point out some critical issues about the kinds of analyses performed that must be fully exploited by the authors, otherwise the found results will not be reliable.

1. This is a minor point, but nonetheless important for the reader. The whole database used for the analysis is the total of 465 traffic accidents together with the corresponding "moral losses", i.e. the victims of traffic accident. By the way, do the authors mean for

this term just the number of deaths? Or do they extend this also to all injured people? A clear statement is needed about this point.

2. A second important point is that the paper misses a critical validation of the used database. In particular there is not the statistical distribution of the victims (or injured people). Since the authors use not only an official source (the Cluj County Police Inspectorate) but also a more informal source (local press), I cannot exclude that the database is incomplete (i.e. some data are missing). This is a crucial point in any analysis of a certain database. Typical example can be found in seismology, where it is fundamental to inspect the magnitude statistical distribution in the region of interest (in practice the magnitude of an earthquake is a logarithmic measure of its energy) and then to establish which is the minimum reliable magnitude (the magnitude of completeness): using lower values of magnitude in the further analysis could bias the statistical results significantly (e.g. Mignan et al., 2012).

3. This third point is probably the most delicate and important. The linear regression analysis (results given in Fig. 3) does not convince me, and I suspect that there is something wrong in the interpretation of the authors. In particular, if the authors are correct (dependence on the light conditions), it will be strange to me that the number of accidents in November (around 54 accidents/month) with more than 1800 hr darkness/month is much higher than in December (around 34) which has about 2100 hrs darkness/month. These data seem to support more a seasonal reason (e.g. worse weather conditions, such as fog, raining, etc.), than the lighting conditions, as the most important triggering/affecting factor.

4.No error estimation of the linear regression parameters is made.

References

Mignan, A., & Woessner J., Estimating the magnitude of completeness for earthquake catalogs, Community Online Resource for Statistical Seismicity Analysis, doi:10.5078/corssa-00180805. Available at http://www.corssa.org, 2012.