

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC2
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Comment on nhess-2021-14

Anonymous Referee #2

Referee comment on "Fatalities associated with the weather in the Czech Republic, 2000–2019" by Rudolf Brázdil et al., Nat. Hazards Earth Syst. Sci. Discuss.,
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Very important paper of sophisticated quality. Both the methodology and the literature background are valuable. Although, the paper is rather long, 47 pages, the description of the methods and results are consequent and systematic, so I could not recommend any substantial abbreviation. The Figures are also informative and well edited.

RESPONSE: Thank you for general evaluation of our paper. Because this study represents the first basic paper with attention to fatalities related to weather in the Czech Republic in this complex view, we see as important to explain different aspects of this problem which is a reason that the paper is "rather long".

On p. 6, lines 164-167 you explain the difference between „windstorm” and „convective storm”. Were these details all sufficiently included in the documentary sources, or you applied additional meteorological information to select?

RESPONSE: Because related newspaper reports described in detail also accompanying situation/patterns/phenomena, there was relatively very simple to distinguish between these two categories and there was not necessary to look on any additional meteorological information (e.g. from meteorological observations on any near station for any particular event).

On p. 6, lines 175-181 you describe the two significance tests applied. It is not clear however, when you included the regression line into the corresponding diagrams. If both tests demonstrated significance? Please clarify it, or, even better if you decide and process according to the Mann-Kendall test, only!

RESPONSE: We preferred calculation of linear trends based on the method of linear regression, including evaluation of their significance, which appears also in corresponding diagrams. The Mann-Kendall (M-K) test was used as a further tool to show if its application will give different information of trend significance. As follows from our explanations on lines 609-612, the M-K test identified additionally only trend in windstorm-induced fatalities as statistically significant.

Concerning the documentary sources, it would be useful to read the authors opinion and direct analyses on representativity of the long-term trend, annual cycle and distribution among the meteorological reasons established from the authors' data base. The requested analyses could compare the above three aspects derived from the documentary and official data sources.

RESPONSE: Concerning of long-term trends in our fatality database, statistically significant trends appear only in categories convective storms, glaze ice and snow, while in other categories they are insignificant. Because glaze-ice- and snow-induced fatalities result generally from vehicle accidents, these tendencies agree with general decreasing trends in casualties during such accidents and in increasing temperatures during the winter (winter half-year) contributing to less frequent occurrence of glaze-ice and snow. Because fatalities in vehicle-accidents represent nearly half of all weather-related fatalities in the Czech

Republic, it is reflected also in their significant decreasing trends. Annual cycle of fatalities with a maximum in winter months reflects well the occurrence of the most frequent categories – frost, glaze ice and snow. The secondary maximum in summer is attributed to floods, convective storms and rain. I.e., it reflects well also distribution of these hydrometeorological phenomena during the year. Despite a dominant number of fatalities during vehicle accidents (induced by glaze ice, snow and rain), frost-induced fatalities are most frequent among other categories, followed by floods, which are generally taken as the most damaging and deadly natural disaster in the Czech Republic. I.e., we believe, that the analysis of fatalities based on our documentary database reflects reality representatively. On the other hand, as reported in the paper, our database deeply undervalues fatalities related to heat-waves which requires different type of data for the analysis. Section 5.2 shows comparison of our database with those of CSO and police, where different aspects of long-term trend, annual cycle and distribution among the meteorological reasons are discussed in detail needed.