

Reply to Professor Maria Bostenaru Dan (Editor)

Comments: Congratulations for a well designed research. Thank you for the submission to this issue. The hazard described is relevant to know more about, in this issue and in the journal. The abstract summarises the essential, and the structure of the paper is as it should be. Given that it was extremely hard to find referees, the relevance of the paper is not underlined enough. The introduction part can be improved. Thus, apart that there are relatively many self references, I suggest including, according also to the anonymous referee, some references, and pictures when available, on the effects of freezing rain. For example we had in Romania freezing rain in 2019 (see attached file, but for Canada much more relevant are the electricity lines) at the End of January. It destroyed much of the green spaces. For Canada, I suggest writing on the ice storm of 1998, and how it affected the heat supply, which there relies much on electricity, given that there is much hydropower. This would also underline the importance for infrastructure. It would be helpful to localise the areas of freezing rain, connected to this infrastructure and the hydropower, as well as to mention other events than 1998, which might exemplify the relevance for Canada.

Answer: We thank Professor Maria Bostenaru Dan for the valuable comment to improve the introduction by addressing natural hazards caused by ice storms over Canada. We also thank her for the pictures showing damages in Romania by the ice storm occurred in 2019. As suggested, specific damages caused by the ice storm occurred in 1998 over eastern Canada and the northeastern United States (Lecomte et al., 1998; Cortinas, 2000; Hauer et al., 2011) as well as the ice storm occurred in 2013 over eastern Canada (Armenakis and Nirupama, 2014; City Report, 2014) have been addressed in the revised manuscript. Please see from page 1, line 26 to page 2, line 5. It is a good idea to provide some pictures showing the damages of infrastructure by the two ice storms; however, they have not been included, as we are worried about copyright issues and people can easily find those pictures through internet. Several studies have been additionally introduced in the fields of urban functioning (Hauer et al., 2011), the forestry sector (Seidl et al., 2017), and electrical infrastructure (Fu et al., 2006) (lines 23-26 on page 1). We hope that the revised manuscript adequately addresses the editor's suggestion.

References

- Armenakis, C. and Nirupama, N.: Urban impacts of ice storms: Toronto December 2013, *Nat. Hazards*, 74(2), 1291-1298, 2014.
- Fu, P., Farzaneh, M., and Bouchard, G.: Two-dimensional modelling of the ice accretion process on transmission line wires and conductors, *Cold Regions Science and Technology*, 46(2), 132-146, 2006.
- Cortinas J.: A climatology of freezing rain in the Great Lakes region of North America, *Monthly weather review*, 128(10), 3574-3588, 2000.
- Hauer, R.J., Hauer, A.J., Hartel, D.R., and Johnson, J.R.: Rapid assessment of tree debris following urban forest ice storms, *Arboriculture and Urban Forestry*, 37(5), 236, 2011.
- Henson, W., Stewart, R., and Kochtubajda, B.: On the precipitation and related features of the 1998 ice storm in the Montréal area, *Atmospheric Research*, 83(1), 36-54, 2007.
- Lecomte, E.L., Pang, A.W., and Russell, J.W.: Ice storm '98', Ottawa, Canada: Institute for Catastrophic Loss Reduction, p. 99, 1998.
- Seidl, R., et al.: Forest disturbances under climate change, *Nature climate change*, 7(6), 395, 2017.