Natural Hazards
and Earth System
Sciences

Open Access

EGU

Discussions

# Interactive comment on "Natural hazard impacts on transport infrastructure in Russia" by Elena Petrova

**Anonymous Referee #1**

Received and published: 7 March 2020

In her paper the author describes an analysis of impacts to the Russian transportation infrastructure due to natural hazards. The analysis is based on a historical database with incidents between 1992 - 2018, which was developed by the author.

Although the general topic of the paper is highly relevant for NHESS there are several major issues which need to be addressed before publication.

The introduction section (section 1) provides an introduction to transportation infrastructure in general and related vulnerabilities due to natural hazards. This section does not have any scientific references related to possible classifications of transportation infrastructure (including subcategories) and natural hazards. For example it remains unclear why the author chose the natural hazard classification presented in figure 1 and not other published classification schemes. The reference in line 33 is missing in the

reference section. The literature review (line 55 ff) is quite comprehensive in the sense that it includes many references, but the analysis with respect to the presented study is very rough and lacks detail. Just a mere listing of references with just a few sentences is not sufficient for a journal paper. But I like that the author looked for papers which described various natural hazard impacts to traffic infrastructures. This needs to be expanded in a revision.

Section 2 is too brief and lacks detail. The study region is only described by region, but no hazard information is provided for those regions. The paper remains on the level of hazard categorization in general. A deeper description of Russia on region level with respect to hazards and vulnerabilities is needed. The methodology section is super brief and it does not sufficient detail about the data sources, the selection criteria / levels for data to be included, the structure of the database, etc. Without this information nobody can reproduce the database or assess the quality of the produced database. There is also no definition of risk and it is unclear how the five risk categories are calculated. Just looking at incidents in a database – even with information about natural hazards – does not qualify for a risk analysis. It is more like a statistical analysis of a database. The author needs to describe the method in a detailed and understandable way and she should also include scientific references in the methodology section.

Section 3 is a qualitative description of natural hazard induced incidents to the transportation sectors road, rail, water and air. As a sub section of an improved paper this may provide valuable insights to better understand the vulnerability of transportation infrastructure in Russia, but without a sound section 2 it remains unclear whether these results make sense or not. Structuring the analysis along the transportations modes is fine and should be kept, but it should be more analytical and not just descriptive.

The conclusion section lacks also detail and it remains unclear what the main contribution of the paper is. A critical reflection on the method is very brief and the discussion could be expanded, but without knowing more about the methodology and the underlying risk analysis the reviewer can not provide any meaningful recommendations for

improvement for this section.

C3