

Interactive comment on “Mapping Accessibility in the Historic Urban Center of Bucharest for Earthquake Hazard Response” by Ioan Ianoş et al.

Anonymous Referee #1

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Methodology

The paper deals with the case study of Bucharest, which is a city vulnerable to earthquakes like a few others which present the Mexico-city effect. The data sets are as well the buildings which are subject of loss, but also items for emergency planning such as hospitals and fire stations. The mapping of the building stock is essential since those with highest risk are likely to collapse and need intervention. The focus lays however on the transportation networks which are subject of the research question on accessibility. To map them, different maps were used for digitalisation in a GIS software. The GIS capabilities permit computing the speed of intervention between the emergency planning items and the collapsed building according to the road and other traffic on the ways. The methodology can be used also for other earthquake prone cities with

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similar problems, taking into account particularities such as the fact that Bucharest is located on a plain. The presence of both historic city centre with narrow streets and later boulevard development from the 19th century enhances the validity. The variables are well defined and measured with means designed for this in a GIS environment for road network analysis. There are other studies from earlier years when such methods had to be first programmed in a software (Fiedrich, Goretti). A review of these and also a connection to Space Syntax remains unclear. Also the relationship to agent based modelling could be more clear.

Data and Results

The study matches the results as presented briefly in the abstract. The paper properly underlines the study results with a table and graphs. The graphs present accessibility before and after an earthquake, for both fire fighters and ambulances. The reduced accesibility is calculated through the blocking of roads through collapse of high seismic vulnerability buildings, which are at the same time for Vrancea earthquake high rise buildings. Fire after earthquake is considered a major threat as the roofs are out of wood, but this is not the case for these high vulnerability buildings. This should be corrected. The accessibility from more emergency nodes is also discussed. The text presents the discussion of the data in the figures, not their description. Given that the area chosen for the study is relevant through the density of high seismic risk buildings, this is a statistically relevant result.

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