

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC2
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Comment on nhess-2021-294

Anonymous Referee #2

Referee comment on "Strategic framework for natural disaster risk mitigation using deep learning and cost-benefit analysis" by Ji-Myong Kim et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2021-294-RC2>, 2022

Gradual increases in the frequency and severity of natural disasters increase loss risk of human life and property. It is important to estimate the damages caused by the disaster before such events occurs. The authors attempted to to develop a strategic evaluation framework and analyzed the natural disaster risk mitigation strategies by DNN methods with data of insured loss amounts between 2009 to 2019. The ideas is Scientific and topic is suitable for NHESS.

After reading the manuscript carefully, I found some important messages were missing or not clearly stated. I listed them below for improving the presentation:

- The quality of the data determines whether the analysis results are scientific. The authors carry out the research with data on claim payout for storm and flood damage insurance from from the Korea Insurance Development Institute. But How many pieces? What information in the data? The author only gave the data name and resources. It is necessary to describe the data information in detail.
- The data collected are claim payout for storm and flood damage. But the selected disaster factors include wind speed and Peak Ground Acceleration. What is the reason? What is the relationship between them?
- It is an interesting attempt to use DNN to predict disaster loss. The authors just trained the model and compared it with MRA model. I think it is import to analyze it in detail and use it in resent disaster cases.
- The authors describe two stages in their work. Stage I is to create a predictive model based on a deep learning algorithm with data on claim payout for storm and flood damage insurance. Stage II is to analyzed the cost-benefit with data on natural disaster risk reduction projects. There seems to be no logical relationship between the two. What is the relationship between the two stages? The authors should describe it clearly.
- Sections about the methods and results should be revised. The authors mixes methods and results together in Section 3 and Section 4, which are nor clearly presented.