EGU 2020 - Online

NH9.4

Natural hazard impacts on technological systems and infrastructures

Convener: Elena Petrova

Co-convener: Maria Bostenaru Dan

Session material

Hazard groups

We grouped the presentations in the following order:

- papers dealing with multi-hazard to infrastructure (4 papers)

- papers dealing with climate change effects on infrastructure (2 papers)

- papers dealing with climate change related hazards such as water as hazard (3 papers)

- papers dealing with geological hazards such as earthquakes (3 papers).

Therefore for the chat we propose discussions among papers dealing with the same hazard groups and to relate these to multihazard.

Methodology/case studies

The papers are either presenting general methodology (ex. the RESISTO H2020 project looks at communication infrastructure at natural and human-made hazards, including decision support systems; decision making for industrial parks, vulnerability assessment of airports)

or case studies from Russia, Germany, Austria, China (2 papers), UK, India, Romania, Hungary. The case study reports use as methodology database development, literature review and policy analysis, user surveys, statistics on indicators, simulations, stochastic programming of cost estimation of protection alternatives, remote sensing and GIS mapping, mapping combined with stochastics and cascading failure.

Therefore for discussion we propose discussing some methodologies such as:

- from indicators for statistics and stochastics (incl. Monte Carlo simulation) to decision making (including Fuzzyness).

- the relationship between natural and human-made hazards

- methods to collect data, such as literature review, user surveys, remote sensing. Which is the difference between field trips and collection from data providers (ex. land records)

- methods to aggregate the data (database, visualisation through mapping)

- the study areas themselves: what is common in the results, and what can be applied from the general methodologies to the particular case studies? How can be results replicated?

Infrastructure categories

The introductory paper refers to transport and lifelines infrastructure. Some infrastructures included in the following papers in both methodology papers and case study papers are railways, dams, airports, lifelines (such as power grids or communication networks, or in general), dams, industrial parks.

Therefore for the chat we recommend to look to papers dealing with the same infrastructure compared across countries.

Contributions from previous sessions and publications

Please take a look to the previous sessions and special issues for a general frame.

EGU 2013

NH9.9

Multi-hazard natural and technological risks: assessment and impacts

Conveners: Elena Petrova , Kevin Fleming | Co-Convener: Elisabeth Krausmann

https://meetingorganizer.copernicus.org/EGU2013/orals/11854

EGU 2014

NH9.5

Natural hazard impacts on technological systems and urban areas

Convener: Elena Petrova | Co-Conveners: Elisabeth Krausmann , Maria Bostenaru Dan

https://meetingorganizer.copernicus.org/EGU2014/orals/15648

EGU 2015

NH9.5

Natural hazard impacts on technological systems and urban areas

Convener: Elena Petrova | Co-Conveners: Elisabeth Krausmann , Maria Bostenaru Dan

https://meetingorganizer.copernicus.org/EGU2015/orals/18750

EGU 2016

NH9.4

Natural hazard impacts on technological systems and urban areas

Convener: Elena Petrova | Co-Conveners: Maria Bostenaru Dan , Elisabeth Krausmann

https://meetingorganizer.copernicus.org/EGU2016/orals/20330

EGU 2017

NH9.4

Natural hazard impacts on technological systems and infrastructures

Conveners: Martin Klose , Elena Petrova | Co-Conveners: Benjamin Postance , Michal Bíl , Elisabeth Krausmann , Maria Bostenaru Dan , Bruce D. Malamud , Bodo Damm

https://meetingorganizer.copernicus.org/EGU2017/orals/23076

EGU 2018

NH9.4

Natural hazard impacts on technological systems and infrastructures

Convener: Elena Petrova | Co-Conveners: Faith Taylor , Elisabeth Krausmann , Maria Bostenaru Dan , Michal Bíl , Benjamin Postance , Bodo Damm , Paolo Tarolli

https://meetingorganizer.copernicus.org/EGU2018/orals/26715

EGU 2019

NH9.12

Natural hazard impacts on technological systems and infrastructures

Convener: Elena Petrova | Co-conveners: Maria Bostenaru Dan, Elisabeth Krausmann

https://meetingorganizer.copernicus.org/EGU2019/session/32510

EGU 2020

NH9.4

Natural hazard impacts on technological systems and infrastructures

Convener: Elena Petrova | Co-convener: Maria Bostenaru Dan

https://meetingorganizer.copernicus.org/EGU2020/session/34881

Special issues in NHESS

Natural hazards and technological disasters

Editor(s): E. Petrova and E. Krausmann

2011

https://www.nat-hazards-earth-syst-sci.net/special_issue127.html

Natural hazard impacts on technological systems and infrastructures

Editor(s): E. G. Petrova, E. Krausmann, M. Bostenaru Dan, and H. Kreibich

2018-2019

https://www.nat-hazards-earth-syst-sci.net/special_issue1003.html

Editions with a slightly different focus till 2011 – a review

Bostenaru Dan, M. The session series on “Natural Hazards’ impact on urban areas and infrastructure”. Rev Environ Sci Biotechnol 10, 9–24 (2011). https://doi.org/10.1007/s11157-011-9231-1

https://link.springer.com/article/10.1007/s11157-011-9231-1