Geophysical Research Abstracts
Vol. 20, EGU2018-9004, 2018
EGU General Assembly 2018

Which cities have similar hazard environments?

Anna Lo Jacomo (1), Dawei Han (1), and Alan Champneys (2)

(1) Department of Civil Engineering, University of Bristol, Bristol, UK, (2) Department of Engineering Mathematics, University of Bristol, Bristol, UK

Increasing interest in multi-hazard approaches has lead to a rise in tools and datasets which provide multi-hazard information at the global scale. One of these is the tool ThinkHazard! (Fraser et al., 2017), which combines numerous hazard maps and gives the relative level of risk for different hazards in any place of interest.

Knowing the level of risk is important, but the challenge then is to design infrastructure which is suitable for that hazard environment. Often this is not a simple problem to solve as there are trade-offs in mitigating different hazards. For example, building a reservoir dam to control floods and droughts could increase the consequences of an earthquake. Similarly, relocating from the floodplains to higher ground might reduce flood impact, but it could cause an increase in landslide occurrences.

By building on existing multi-hazard tools, this work begins to address the issue of risk reduction in multi-hazard areas by identifying cities which face the same or similar multi-hazard challenges, and expressing the level of similarity using a newly defined multi-hazard similarity index. Using this index, cities can more easily identify other cities that face the same difficult decisions, to share lessons learnt and best practice.

Fraser, V.S., Author, O., Douglas, S.J., Simpson, A., Fraser, S., Kuijper, M., Winsemius, H., Burzel, A., Hohmann, A., Taillefer, N., Jacon, F., Giraud, P., 2017. Methodology report for ThinkHazard! Version 2 1–66.