



Belgeo

Revue belge de géographie

1 | 2015

**Hazards and Disasters: Learning, Teaching,
Communication and Knowledge Exchange**

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Matthieu Kervyn, Martin Haigh and Lindsey McEwen



Electronic version

URL: <http://journals.openedition.org/belgeo/16397>

DOI: 10.4000/belgeo.16397

ISSN: 2294-9135

Publisher:

National Committee of Geography of Belgium, Société Royale Belge de Géographie

Electronic reference

Matthieu Kervyn, Martin Haigh and Lindsey McEwen, « Editorial: Hazards and Disasters: Learning, Teaching, Communication and Knowledge Exchange », *Belgeo* [Online], 1 | 2015, Online since 30 March 2015, connection on 24 September 2020. URL : <http://journals.openedition.org/belgeo/16397> ; DOI : <https://doi.org/10.4000/belgeo.16397>

This text was automatically generated on 24 September 2020.



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Editorial: Hazards and Disasters: Learning, Teaching, Communication and Knowledge Exchange

Matthieu Kervyn, Martin Haigh and Lindsey McEwen

- ¹ Geography's 'unique selling point', alongside its concern for spatial relationships, is its ability to unite social and environmental perspectives. Amidst a large literature, Ravi Singh (2009, p. 2) suggests, "*The general trends in the history of geographical thoughts do suggest our discipline's guiding principle has been its integrated perspective under which human and physical (natural) domains are simultaneously considered interconnected and interrelated*". He also suggests that a key item on the agenda for 21st century is to unify Geography. In this journal, Brunet (2003) singled out the growth of Geography's uses and usefulness to fields that span local development, territorial planning at all scales, and globalisation, as a key development in the last quarter of the 20th Century. More controversially, Kesteloot & Saey (2003) argued that human Geography had become more concerned with ethnography and environment, more 'holographic' in that 'wholes' are described by analyses of the parts that contain that whole, more oriented to the analysis of institutions, and more constructivist in ambience. In the UK, Haigh (2002) dreamed of an ethical, more cosmopolitan, more complete, applied geography that promoted environmental reconstruction and sustainability and that prioritised the needs of the Earth as the home of humanity. A decade later, however, Vandermorten & Kesteloot (2012, p. 4) worried that Geography: "*has been up to now unable to [achieve epistemological integration] around the new and important research themes like environment and risk and other global changes*". This failure is partly related to "*confining research to analytical strategies, constantly reducing complex interactions to a few of their elements, rather than enabling synthetic understanding of reality*". Accordingly, Vandermorten & Kesteloot (2012) committed *Belgeo* to keeping its generalist approach and to favouring work that emphasised both the social responsibilities of geographers and their contribution to intellectual and political debates.

- 2 This thematic issue on 'Hazards and Disasters: Learning, Teaching, Communication and Knowledge Exchange', goes some way to support this ambition whilst also re-emphasising, if this is needed, that since human problems do not respect disciplinary boundaries, much geography plays out at the human/physical interface. Like other applied geographies, the study of hazards and disasters provides spaces where geographers can apply their sub-disciplinary skill sets whilst employing and developing Geography's holistic vision. Indeed, there are few topics where the benefits of Geography's unifying holistic perspective are more apparent than in the geographical approach to the mitigation of hazard, disaster and risk or that do more to highlight Geography's special capability to treat the whole system. As the papers that follow show, it can show how to categorise, analyse, and where appropriate map or GIS, the physical characteristics and dimensions of a hazard or disaster (Van Campenhout *et al.*, 2016; Dournel *et al.*, 2016; Martin & Holleville, 2016), it can assess and evaluate the attitudes, worldviews and perceptions of affected communities along with the role of its politics, governance, economic base, culture, communications and media (Alexis-Martin, 2016; Martin *et al.*, 2016); it can evaluate, the technical options available for avoidance, mitigation and control in terms of their environmental impacts and benefits and their interactions with the priorities, economic systems and culture of affected communities (Beech *et al.*, 2016). Finally, it can also play a major role in drawing together the collective experience of an affected community (Kervyn *et al.*, 2016), in evaluating the role of cultural differences (Alexis-Martin, 2016), in shaping communications into culturally affective terms that resonate with local communities (Haigh & Rawat, 2011) and, finally, in feeding back understanding of both the hazard and disaster management processes into the community through education (Miller *et al.*, 2016).
- 3 In preparation for this thematic issue, *Belgeo* hosted a special symposium at the *International Conference of the Royal Geographical Society (London)*, a unique cooperation between the journal and the RGS, held in late August 2014 at Imperial University, London. This symposium was cosponsored by the Royal Geographical Society's Higher Education Research and Planning and Environment Research Groups. It included 15 papers, the best of which, with others, are published here.
- 4 Alexis-Martin (2016) explores the psychosocial impacts of exposure to nuclear radiation by comparing the impacts on female survivors of the nuclear reactor accidents at Chernobyl, Ukraine, in 1986 and Fukushima, Japan, in 2011. This paper analyses the way that political, social, geographical and cultural differences affected the impacts on women. It notes the greater stigma experienced by Japanese women, caused in part by Japan's Nuclear history and subconscious prejudices about the effects of radiation, while those of the Ukraine were more prone to suffering depression. It also notes how cynicism about the pronouncements of the authorities in Soviet and post-Socialist Ukraine has encouraged more significant breaching of evacuation policies with more choosing to return home, despite the risks of radiation, than is yet the case in Japan.
- 5 Van Campenhout *et al.* (2016) focus on the characterization of flash floods and muddy floods in the Walloon part of Belgium. Using a case study from a large impact flash flood of May 2008, they illustrate how it is possible to reconstruct the key hydrological characteristics of the event despite the lack of monitoring data. Based on a geomorphological survey and the characterisation of the transported sediments, they

evaluate the discharge and stream power of these flash floods in four ungauged catchments. Using a review of press archives, they thereafter highlight the spatial and temporal distribution of similar flash floods across Wallonia. Taking into account the limitation of this historical inventory, they highlight the fact that intense rainfalls are key in controlling the occurrence of flash floods and rather more important than the presence of loamy soils.

- 6 Martin & Holleville (2016) demonstrate the value of the geohistorical approach to determining the magnitude-frequency distribution of intense flood events in the Thur River catchment, in eastern France, and question the accuracy of the flood risk prevention plan in delineating expected flood zones from future events. Using a range of historical sources, they identify the largest flood events that affected the city of Thann over the last 150 years. A detailed spatial analysis of the damage reports from the 1947 floods demonstrates that the potentially flooded area is much larger than that reported in the flood prevention plan, partly because it neglects secondary streams. They stress the need for contextualization when comparing events by highlighting the discontinuities that exist in the way events were reported and perceived by the local population. They also emphasise the need to take into account evolving hazard vulnerabilities associated with land use and climate change.
- 7 Dournel *et al.* (2016) also study issues of flood risk in several cities within the Loire catchment, France, but their focus is how authorities communicate about flood risks to the population. Contrasting the cases of Saint Etienne, Orléans and Nantes, they question the implementation of the concept of flood resilient cities. After describing the historical trends leading to enhanced occupation of flood prone areas for urban expansion, communication strategies implemented by agglomeration and city authorities are analysed. These are often limited to the legal requirements and expressed in technical terms, partly due to the reluctance of officials to highlight flood risks in their communications. The de-emphasising of information on flood risk to inhabitants is even more dramatic at the scale of specific urban planning projects, despite the fact that some of these projects clearly take risk reduction into account in their design.
- 8 Kervyn *et al.* (2016) tackle the issues of managing rainfall-induced landslide hazard in the mountains of Equatorial Africa, specifically two landslide prone areas of both Uganda and Cameroon. Attempting to develop effective risk-reduction strategies, the team has sought to tap local knowledge through workshops with stakeholders. The stakeholders demonstrate understanding of the timing and distribution of landslide events and a deep appreciation of their impacts both direct and also those that are far-reaching indirect, intangible and cumulative. These stakeholders were also very effective in identifying the bottlenecks and problems inherent in alternative adaptive risk reduction strategies. The experience showed how stakeholder inputs can help both ground and improve landslide mitigation action.
- 9 Beech (2016), recalling the air traffic chaos that resulted from the eruption of Eyjafjallajökull on Iceland, April–May 2010 (Langmann *et al.*, 2012), considers the role of technology, especially GIS, in helping experts and the public liaise with each other. He deploys participant observation and semi-structured interviews to analyse these issues as they affect Iceland's hazard management institutions and monitoring networks, establishing and critiquing how volcanic hazards in Iceland are communicated and the role of internationally co-produced, technologically generated, knowledge.

10 Miller *et al.* (2016) describe a role-play simulation exercise designed to help university students hoping to work in the emergency and natural hazard management fields. This 'Crisis and Emergency Risk Communication' (CERC) tool aims to help stakeholders communicate efficiently and that they are enabled to prepare plans and sets of operating principles that ensure effective interactions during a crisis. After participation in the activity, almost 9/10 participants felt that they had good risk communication skills compared to about ¼ before. They also stated that the experience motivated them to learn more about hazard management and as a result, that they had a deeper understanding of the requirements for, and problems of, effective communication during a crisis.

11 Conclusion

12 Extreme events happen and, when they do, they cause changes that can affect both physical and human systems as well as their interactions. There is nowhere free from hazard; there will always be disasters to fill the newspaper headlines and much of the media analysis will remain shallow. This thematic issue of *Belgeo* demonstrates that risk is the co-production of social, political, cultural, psychological, physical, environmental and stochastic processes, and also that the outcomes of risk management are affected by equally complex interactions, which determine the character of preparedness, management and reaction. It shows how future hazards may be constrained using a range of historical, geomorphological or sedimentological approaches and also how the limitations of these data should be addressed before their translation into risk management strategies. It stresses ongoing efforts in evaluating and communicating about hazards, risks and their management highlights the importance of working with local communities and their special circumstances. It also introduces innovative approaches to facilitating more effective ways of teaching, learning, communicating about, exchanging different knowledges, and, ultimately, managing hazard and risk. Finally, this special issue of *Belgeo* details research that tackles the integration of the different geographical components of hazards and risks, especially factors controlling the spatial variation of risk, the cultural control on psychological impacts of disasters, the definition and evaluation of resilience and vulnerability; the critical evaluation of hazard maps, the human dimensions of risk and their media portrayal, and approaches to effective communication, learning and teaching about risk and disasters.

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AUTHORS

MATTHIEU KERVYN

Vrije Universiteit Brussel, Brussel, makervyn@vub.ac.be

MARTIN HAIGH

Oxford Brookes University, Oxford, UK, mhaigh@brookes.ac.be

LINDSEY MCEWEN

University of the West of England, Bristol, Lindsey.Mcwen@uwe.ac.uk