



Editorial

Perception, representation and narration of environmental and urban risk: Floods, earthquakes, desertification, pollution, health, gentrification

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Abstract: This article is the Editorial of the Special Issue “Perception, representation and narration of environmental and urban risk: floods, earthquakes, desertification, pollution, health, gentrification”. It reflects on the aims and failures of this special issue. Space is given to a brief reflection on the role that humanistic geography plays in the study of perception, and the importance that a broader development of this approach could have in understanding human attitudes toward risk perception and prevention. Then, in the words of the authors themselves, the main points that distinguish the contributions of the scholars who have contributed to this special issue are taken up, offering a wide range of investigations on the subject.

Keywords: risk; perception; geography

1. Geography and perception

As we wrote in the call for papers for this special issue of *Geosciences*, the relationship between humans and their environment is intricate, multifaceted, and ever-evolving. Geographical landscapes often serve as the backdrop for various risks and hazards that profoundly impact human lives and communities. These risks include floods, earthquakes, desertification, and pollution, but also poverty, which forms the backdrop to gentrification processes, and digital risks, which have wide-ranging consequences for urban and natural environments as well as the emergence of a new “social-technosphere”. In this regard, it would have been interesting to study risk perception and its

representation from an empirical and cartographic, but also literary, point of view. This is because understanding attitudes toward risk and their representations also allows us to understand the predisposition of individuals to act proactively. This includes, for example, the perception of risks related to climate change, such as rising sea levels and temperatures and extreme weather events. It therefore includes the study of individuals' beliefs, emotions, and actions in response to climate risks and the factors that influence adherence to mitigating behaviors. Similarly, it would have been interesting to investigate risk perceptions related to the development of new technologies such as artificial intelligence and robotics and to study concerns related to privacy, cybersecurity, work automation, and the social impacts of digi-technologies (voting behavior, explosion of new forms of anti-Semitism, etc.).

Unfortunately, this has not been possible: When it comes to “risk”, there is little deviation from *formulae* and figures. Despite attempts to open the door to cultural and humanistic geography, to anthropology, and to all those sciences that place the narrative of individuals at the center of their studies, scholars have not responded with enthusiasm, except in a few cases. And I take responsibility for this: I have not been able to fully involve those who actually research risk perception in the most diverse fields.

Yet, more and more often, we hear about risk perception; but what exactly is meant by the term “perception”? What are the main scientific approaches to the study of perception? From an environmental point of view, as Vallerani [1] points out, the dramatic objectivity of an earthquake, a flood, or a volcanic eruption provokes an immediate reaction of concern and fear but rarely a subsequent rational reflection on which to base adequate forecasting and control strategies. From a methodological point of view, geography has studied the phenomenon of risk with the aid of statistical data, seeking in the figures the rigor on which to base appropriate operational decisions. We all have to wait for Mary Douglas and Aaron Wildavsky and their text *Risk and Culture* (1982) in which the concept of risk perception is introduced and socially constructed, influenced by cultural values and social norms [2]: this idea helped move the field toward understanding the role of cultural contexts in risk perception itself. However, it was the American geographers of the so-called behavioral revolution who introduced the study of hazard perception and initiated the strand of humanistic geography in this field [3].

The humanist geographer, says Vallerani [1], does not share their quantitative colleague's enthusiasm for defining people as numbers in a statistic or mere dots on a map. What is more important is the subjectivity and the personal relationship that individuals establish with their environment. Tuan's humanistic approach [4], for example, emphasizes subjective experience, which is essential to understanding how people perceive risks differently based on their personal histories, cultural backgrounds, and emotional ties to places. This contrasts with more objective or quantitative approaches to risk, offering a richer understanding of why different communities or individuals might perceive the same risk differently. This is why the study of perception becomes crucial: It allows us to understand what “our” representation of the world is. Perception is influenced by our subjectivity, our mind, and the representation we have of the world. Consider visual perception: Our way of seeing is not only directed by our sense of sight but also shaped by the brain, which processes sensory information. Therefore, it is not surprising that perceived risk often diverges from actual risk. As Mercatanti and Sabato demonstrate, certain negative events are sometimes perceived as low risk, even when the actual probability of a negative outcome is quite high, and vice versa, influenced by our prior experiences [5].

It is well known that people's perception of risk is the result of various factors that influence them, such as age, gender, diet, personal experience, education, culture, place of residence, emotionality, personality, and the media. The media plays a significant role in shaping public perception of risk, often influencing how people understand and respond to potential dangers. Media and social media, and now artificial intelligence, are able to construct and deconstruct fears and create positive or negative perceptions of our surroundings.

Several studies [6–9] demonstrate the pivotal role of media coverage in shaping public perception, e.g., in relation to environmental change and natural hazards. Through the introduction of frames of reference, the media can influence how different individuals or societies perceive climate change, providing information in a way that highlights certain aspects over others. This is significant because the perception of the issue directly influences its response. As emphasized by Pasquaré and Opizzi, Italian journalists, for example, tend to concentrate on depicting natural disasters and the resulting damages, thus overlooking vital aspects related to prevention and advocacy for policies aimed at safeguarding the territory. This shortfall in coverage represents a missed opportunity to effectively raise awareness among the population [8].

As outlined by Giddens [10], there are at least three distinct perspectives on climate change. First, climate change skeptics argue that there is insufficient evidence to attribute today's global warming processes to human activity. Second, the widespread dissemination of the *Intergovernmental Panel on Climate Change's* publications¹ has significantly heightened awareness about the risks posed by climate change, aggregating scientific data that outline various potential future scenarios. Finally, there are those referred to by Giddens as “radicals”, i.e., individuals who believe that “the ice fields that cover Antarctica and Greenland may disintegrate sooner, and more thoroughly, than is usually believed possible; or that the melting of the frozen peat bogs in western Siberia and in Canada might release large amounts of methane into the air. Methane is a much more potent greenhouse gas than carbon dioxide. Some radicals—such as the scientist James Lovelock—believe it is already too late to avoid dangerous climate change. We had best concentrate most of our energies preparing to adapt to it and cope as best we can. Others think we can still hold back the more devastating effects, but to do so we must start taking far-reaching action in the here-and-now” [10]. Other scholars focus on the responses and attitudes that are generated by the way we perceive climate-related risk [11] or the anxiety that arises following extreme weather events and natural disasters [12,13].

The scenario becomes even more complex when addressing climate-induced migration. In this case, two perceptions are combined—that of the (more or less recognized) environmental risk and that of the fear of the foreigner, who is fleeing from an environmental risk but may themselves be a risk in the imagination of the host population, depending on the political representation of migration. It would have been interesting to carry out an in-depth study on this topic, but it could certainly be a starting point for expanding our research.

Conditions such as natural disasters resulting in limited access to resources and the destruction of villages propel increasingly vulnerable populations to abandon their home territories. While one of the primary challenges lies in defining the phenomenon of climate change-driven migration, given that the underlying motivation stems from a combination of causes (including social, political, economic, and environmental factors), the very classification of climate migrants poses challenges for

¹ See: ipcc.ch.

acceptance by countries of arrival [14]. Does a climate migrant have the same reception rights as a war refugee? As Francis states, “Cross-border climate migrants enjoy no protection under international law. While international refugee law offers protection to people displaced across borders by instances of social upheaval such as political conflict, international refugee law provides no protection to people displaced solely by climate-related disasters. Recent international processes like the Global Compact for Safe, Orderly and Regular Migration, the Sendai Framework for Disaster Risk Reduction, and the United Nations Framework Convention on Climate Change have underscored the importance of addressing climate-induced migration, however, international law has yet to provide a governing framework for climate-induced migration. The absence of both legal rights and a comprehensive governing framework creates a key protection gap for cross-border climate migrants” [15]. If climate factors are not combined with the grounds set out in the 1951 *Refugee Convention*—persecution on the grounds of nationality, ethnicity, religion, political opinion, etc.—there is no legal protection for climate migrants; there is no chance for climate migrants to be granted the right to protection [15,16]. Therefore, climate risk perception not only shapes people’s attitudes, with awareness of the risk prompting actions to mitigate the consequences of climate change, but also exerts influence over political decisions concerning people displacement.

Numerous studies [17–19] have been conducted to investigate how the perception of environmental degradation motivates migration. However, fewer [20] address the role of climate risk perception among people in host countries, particularly when the distance between migrant and host population is significant. Indeed, attitudes toward climate migrants are influenced by host-migrant geographical proximity. In simpler terms, people are more likely to welcome individuals affected by an extreme event (such as floods or earthquakes) that occurred within their own borders, compared to those impacted by a similar event thousands of kilometers away [21]. Nevertheless, if the influx of migrants becomes constant and is not the result of isolated events, it could adversely affect the social acceptance of even internal climate migrants, leading to their exclusion and, in the worst-case scenario, escalating into violence if social tensions intensify between displaced individuals and host communities, particularly in competition for resources [21–23].

As we can see from these brief reflections, if risk (environmental, economic, social, geopolitical) is a fact linked to objective events (earthquakes, droughts, gentrification, wars, migrations, etc.), it is the perception of these events that determines the relationship between human beings and the planet. The narrative of this perception is fundamental, and cultural geography is one of the disciplines best suited to investigate it.

2. Authors’ contribution

Geographers employ a variety of methods to study risk perception, ranging from quantitative surveys to qualitative interviews and participatory mapping. These methods allow researchers to capture the diverse ways in which people perceive risks and the factors that influence these perceptions.

Understanding risk perception is critical for developing effective risk management strategies, public policies, and communication efforts. Policymakers and planners must consider the diverse ways in which risks are perceived and address the factors that contribute to these perceptions. In particular, risk communication strategies must address the psychological, cultural, and social factors that influence how people interpret information about risks.

In this special issue, Demichelis and Ongaro focus on the 6.3 magnitude earthquake that struck L'Aquila, Italy, on April 6, 2009, causing extensive damage and loss of life and raising important questions about scientific risk communication. "In the preceding weeks, increased seismic activity had alarmed the population, prompting authorities to seek expert advice. Public authorities reassured the population that the chances of a dangerous shock were slim. These assurances given by officials led many to remain in their homes when the earthquake struck. [...] Moreover, the paper investigates the social dimensions of earth science, examining the multifaceted role of scientists as both technical experts and social actors. The L'Aquila case exemplifies the need for integrating scientific accuracy with an understanding of its social implications. Effective risk communication must address cognitive limitations and the presence of social context to reach appropriate public behavioral responses. In order to achieve that, communication should be handled by actors that have specific expertise in its complexity" [24].

Profeta et al. did not deal with risk perception but immersed us in the narrative of a high-risk event—the detonation of a nuclear device in a densely populated urban area. "In the event of a hypothetical tactical nuclear device being detonated in a densely populated urban area, the first responders must be well-prepared to make immediate decisions with limited information. To aid in this preparation, a computer simulation using the HotSpot Health Physics code was conducted to model the detonation of a tactical nuclear device in an international airport and its surroundings, considering different yields ranging from 1 to 10 kilotons. The simulation was conservative and applied to a time window of 4 days in the initial phase of the response to the event. The simulation findings allow for assessing the immediate effects of the electromagnetic pulse (EMP) and the radioactive contamination plumes on an inhabited area" [25]. A possible continuation of the research, from the perspective of cultural geography, could also highlight the public's perception of a possible nuclear event. The fear of nuclear war was, for example, the topic dealt with by Poikolainen et al., who pointed out that frequent fear of nuclear war in adolescents seems to be an indicator of an increased risk for common mental disorders and deserves serious attention [26].

Gioia and Guadagno focused instead on the coastal areas of the Gulf of Gaeta, climate change, and the socio-environmental vulnerability of the area. "This research aims to understand how administrations and communities perceive, experience, and understand the coastal risks and challenges posed by climate change, as well as their level of information and preparedness to address such risks" [27]. Based on the assumption that risk perceptions cannot be analyzed without the active involvement of the people who experience "the risk", this paper presents the results of a qualitative survey, conducted through the administration of questionnaires, on the perception of climate change impacts on coastal areas and the level of information on mitigation and adaptation practices within the communities living in these areas.

The contribution that masterfully interprets the paradigm of current humanistic geography is that of Bona, who chose to investigate Salman Rushdie's *Satanic Verses*. Bona aimed "to demonstrate the correlation, a hidden, intricate, interplay, between the conception of risk and the fluid nature of society during the eras of migratory relocations as portrayed in Salman Rushdie's literary masterpiece, *The Satanic Verses*. The general premise found in this paper was that risk is based on the following logical axiom: risk is mathematically unpredictable, something that goes beyond the human capability of discernment or probabilistic prevision. This blank space that separates reality from its potentiality is the risk. Thus, in migratory relocation, the risk consists of the unknowability of what could happen the second after having passed a line. It is the border of what is known. Rushdie's work offers profound

insights into the ways in which individuals navigate the turbulent waters of a rapidly changing world, where cultural, social, and political paradigms constantly shift” [28].

The specificity of this special issue should have been to focus on the “narrative” of risk perception by those who experience it. We have only partially succeeded, but research will have to find ways to explore new avenues, as we believe that the active participation of ordinary citizens—even those who unconsciously fall victim to fake news—is vital for those (scientists, local administrators, stakeholders, teachers) who will have to work to make our planet safe.

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Use of AI tools declaration

The author declares he/she has not used Artificial Intelligence (AI) tools in the creation of this article.

Conflict of interest

The Author declares that there is no conflict of interest regarding the publication of this paper.

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