

# Natural Hazards and Disaster Risk Reduction Policies

**Loredana Antronico - Fausto Marincioni**  
**Editors**





# Geographies of the Anthropocene

OPEN  
ACCESS



PEER-REVIEWED  
SERIES

ISSN 2611-3171

## Geographies of the Anthropocene

Open Access and Peer-Reviewed series

**Editor-In-Chief:** Francesco De Pascale (CNR – Research Institute for Geo-Hydrological Protection, Italy).

**Co-Editors:** Marcello Bernardo (Department of Culture, Education and Society, University of Calabria, Italy); Charles Travis (School of Histories and Humanities, Trinity College Dublin; University of Texas, Arlington).

**Editorial Board:** Mohamed Abioui (Ibn Zohr University, Morocco), Andrea Cerase (INGV Tsunami Alert Center, Italy; Department of Social Sciences and Economics, Sapienza University of Rome, Italy), Valeria Dattilo (University of Calabria, Italy), *Chair*, Dante Di Matteo (“G. d’Annunzio” University of Chieti-Pescara, Italy); Jonathan Gómez Cantero (University of Alicante, Spain; Young Scientists Club, IAPG), Nguvulu Chris Kalenge (University School for Advanced Studies IUSS Pavia, Italy), Battista Liserre (Aix-Marseille University, Campus ESSCA, France), Alessandra Magagna (University of Turin, Italy), Carmine Vacca (CNR-ISMAR, Venice, Italy).

**International Scientific Board:** Marie-Theres Albert (UNESCO Chair in Heritage Studies, University of Cottbus-Senftenberg, Germany), David Alexander (University College London, England), Loredana Antronico (CNR – Research Institute for Geo-Hydrological Protection, Italy), Lina Maria Calandra (University of L’Aquila, Italy); Salvatore Cannizzaro (University of Catania, Italy), Fabio Carnelli (University of Milano-Bicocca, Italy); Carlo Colloca (University of Catania, Italy), Roberto Coscarelli (CNR – Research Institute for Geo-Hydrological Protection, Italy), Sebastiano D’Amico (University of Malta, Malta), Armida de La Garza (University College Cork, Ireland), Elena Dell’Agnese (University of Milano-Bicocca, Italy; Vice

President of IGU), Piero Farabollini (University of Camerino, Italy), Giuseppe Forino (University of Newcastle, Australia), Cristiano Giorda (University of Turin, Italy), Giovanni Gugg (University of Naples “Federico II”, Italy, University of Nice Sophia Antipolis, France), Luca Jourdan (University of Bologna, Italy), Francesca Romana Lugerì (ISPRA, University of Camerino, Italy), Fausto Marincioni (Marche Polytechnic University, Italy), Cary J. Mock (University of South Carolina, U.S.A.; Member of IGU Commission on Hazard and Risk), Francesco Muto (University of Calabria, Italy), Gilberto Pambianchi (University of Camerino, Italy; President of the Italian Association of Physical Geography and Geomorphology), Silvia Peppoloni (Istituto Nazionale di Geofisica e Vulcanologia, Italy; Secretary General of IAPG; Councillor of IUGS), Isabel Maria Cogumbreiro Estrela Rego (University of the Azores, Portugal), Andrea Riggio (University of Cassino and Southern Lazio, Italy; President of the Association of Italian Geographers), Bruno Vecchio (University of Florence, Italy), Masumi Zaiki (Seikei University, Japan; Secretary of IGU Commission on Hazard and Risk).

**Editorial Assistant, Graphic Project and Layout Design:** Franco A. Bilotta;

**Website:** [www.ilsileno.it/geographiesoftheanthropocene](http://www.ilsileno.it/geographiesoftheanthropocene);

The book series “Geographies of the Anthropocene” edited by Association for Scientific Promotion “Il Sileno” (Il Sileno Edizioni) will discuss the new processes of the Anthropocene epoch through the various worldviews of geoscientists and humanists, intersecting disciplines of Geosciences, Geography, Geoethics, Philosophy, Socio-Anthropology, Sociology of Environment and Territory, Psychology, Economics, Environmental Humanities and cognate disciplines.

Geoethics focuses on how scientists (natural and social), arts and humanities scholars working in tandem can become more aware of their ethical responsibilities to guide society on matters related to public safety in the face of natural hazards, sustainable use of resources, climate change and protection of the environment. Furthermore, the integrated and multiple perspectives of the Environmental Humanities, can help to more fully understand the cultures of, and the cultures which frame the Anthropocene. Indeed, the focus of Geoethics and Environmental Humanities research, that is, the analysis of the way humans think and act for the purpose of advising and suggesting

appropriate behaviors where human activities interact with the geosphere, is dialectically linked to the complex concept of Anthropocene.

The book series “Geographies of the Anthropocene” publishes online volumes, both collective volumes and monographs, which are set in the perspective of providing reflections, work materials and experimentation in the fields of research and education about the new geographies of the Anthropocene.

“Geographies of the Anthropocene” encourages proposals that address one or more themes, including case studies, but welcome all volumes related to the interdisciplinary context of the Anthropocene. Published volumes are subject to a review process (**double blind peer review**) to ensure their scientific rigor.

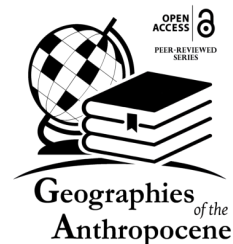
The volume proposals can be presented in English, Italian, French or Spanish.

The choice of digital Open Access format is coherent with the flexible structure of the series, in order to facilitate the direct accessibility and usability by both authors and readers.

# Natural Hazards and Disaster Risk Reduction Policies

Loredana Antronico  
Fausto Marincioni  
*Editors*

IL Sileno  
Edizioni



“Natural Hazards and Disaster Risk Reduction Policies”,  
Loredana Antronico, Fausto Marincioni (Eds.)  
is a volume of the Open Access and peer-reviewed series  
“Geographies of the Anthropocene”  
(Il Sileno Edizioni), ISSN 2611-3171.

[www.ilsileno.it/geographiesoftheanthropocene](http://www.ilsileno.it/geographiesoftheanthropocene)

*Cover:* A woman shovels mud from her driveway in the aftermath of the October 2010 debris flow that affected the Province of Vibo Valentia (Calabria, southern Italy).

Copyright © 2018 by Il Sileno Edizioni  
Scientific and Cultural Association “Il Sileno”, C.F. 98064830783.  
Via Pietro Bucci, Università della Calabria, 87036 - Rende (CS), Italy.

This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivs  
3.0 Italy License.



The work, including all its parts, is protected by copyright law. The user at the time of downloading the work accepts all the conditions of the license to use the work, provided and communicated on the website  
<http://creativecommons.org/licenses/by-nc-nd/3.0/it/legalcode>

ISBN 978-88-943275-2-6

*Vol. 1, No. 2, December 2018*



# CONTENTS

|                     |    |
|---------------------|----|
| <i>Preface</i>      | 8  |
| <i>Introduction</i> | 11 |

## Section I

### *Disaster Risk Perception*

1. Environmental perceptions: participatory methodologies for the assessment of social vulnerability to floods in two communities in Mexico  
*Gustavo Manuel Cruz-Bello, Miriam Alfie Cohen* 16
2. The urban political ecology of flood vulnerability in the core area of Ibadan Metropolis, Nigeria  
*Rafiu O. Salami, Jason von Meding, Helen Giggins* 36
3. People, places and volcanoes. A study on risk perception in the Azores (Portugal)  
*Isabel Estrela Rego, Sofia Morgado Pereira, Mariana Paim Pacheco* 51
4. Geographical and historical processes of human settlements in the Etna Region. A person-place relation approach  
*Salvatore Cannizzaro* 69
5. Humankind and Risk: a difficult history  
*Piero Farabollini, Francesca Romana Lugeri, Nicola Lugeri* 88

## Section II

### *Disaster Planning and Management*

6. Anthropology of the Vesuvius Emergency Plan: history, perspectives and limits of a dispositive for volcanic risk government  
*Giovanni Gugg* 105

7. Inclusive Disaster Planning. Evidences from municipal case studies in the Marche Region, Italy  
*Beatrice Gatto, Susanna Balducci, Fausto Marincioni* 124
8. Post-disaster dynamics in inner areas. An Italian hypothesis for transition management  
*Nora Annesi, Annalisa Rizzo, Matteo Scamporrino* 141
9. Increase social and physical resilience to disaster through post-disaster planning: The case of Cascia Municipality *Federica Appiotti, Mattia Bertin, Francesco Musco* 159

### **Section III**

#### ***Disaster Mitigation and Preparedness***

10. UNESCO Global Geoparks: living laboratories to mitigate natural induced disasters and strengthen communities' resilience  
*Charalampos Fassoulas, Mahito Watanabe, Irina Pavlova, Alessia Amorfini, Edoardo Dellarole, Florian Dierickx* 175
11. Information instead of fatalism: a proposal of a strategy to inform on disasters  
*Jon Cadierno Gutierrez, Justino Losada Gómez* 198
12. Re-assessing the role of communication in the aftermath of a disaster: case studies and lesson learned  
*Andrea Cerase* 213
13. Traditional flood mitigation measures in Mallorca *Miquel Grimalt, Joan Rossello* 243
14. Risk, hazard and disaster in India: a perspective from law and governance  
*Binod Kumar* 261

***The Authors*** 276



## Preface

*JC Gaillard<sup>1</sup>*

Disaster studies is mostly an Anglophone business. It is dominated by researchers publishing in English and circulating ideas framed from a western cultural perspective. This hegemony has contributed to stereotyped understandings of disaster risk and of what should be done to reduce this risk as well as how to respond to disasters. Perspectives that do not fit Anglo-Saxon ontologies (in their diversities) have largely been marginalised and voices from outside this realm have struggled to emerge.

Of course, there have been some noticeable exceptions. Back in the early 1970s, French Anthropologists have influenced the emergence of the so-called vulnerability paradigm (Comité d'Information Sahel, 1975; Copans, 1975) while, two decades later, members of La Red have contributed to the affirmation of the same ideas much beyond their Latin American base (e.g. Maskrey, 1993; Lavell and Franco, 1996). These initiatives have nonetheless been isolated and creative hotspots of disaster scholarships have long formed a patchy landscape of unconnected dots kept apart by ethnolinguistic differences. In consequence, many of these hotspots of disaster scholarship have long remained unknown to most researchers, policy makers and practitioners.

This is fortunately changing. Firstly, there is the rapid emergence of East and South Asian scholars followed by researchers from the Middle East and Africa whose increasing academic production is contributing to more balanced views. Such trend is also progressively expanding to other countries where there has been a long tradition of research on disasters but hitherto only accessible to those who master local languages. Indeed, efforts of language translation, while respecting and showing cultural differences, are on the rise. For example, a number of books in English have recently been edited by Francophone (Revet and Langumier, 2015; Vinet, 2017), Italoophone (Forino *et al.*, 2018) and Lusophone (Marchezini *et al.*, 2018) scholars.

The present volume by Loredana Antronico and Fausto Marincioni, although in English, contributes to further breaking these cultural silos. It features the work of an array of Italian researchers from different social science backgrounds. It also includes contributions from Spain, Portugal,

---

<sup>1</sup> School of Environment, The University of Auckland, New Zealand, e-mail: jc.gaillard@auckland.ac.nz.

Mexico and India, thus participating in a much welcome multi-cultural dialogue on issues around disaster risk and disaster risk reduction.

These fresh perspectives cover multiple dimensions of disaster risk, henceforth providing a wide panorama of current research initiatives in Italy and beyond. These range from the root causes of people's vulnerability and risk perception, to information, preparedness, risk reduction, emergency management, recovery as well as broader issues around governance. These topics are addressed from both empirical and theoretical perspectives, thus providing an array of diverse and unique views to inform how we comprehend disaster risk.

The case study of Mt Etna in Sicily is particularly interesting from the viewpoint of academic geopolitics. This volcano is obviously very well-known and has stirred much interest beyond the borders of Italy. In fact, most key references on local risk, from a social science perspective, available to non-Italian speakers have been written by Anglophone scholars rather than locals (e.g. Chester *et al.*, 1999, 2008; Dibben, 2008). It is therefore refreshing and welcome to be able to here read a chapter written by an Italian researcher who is actually based in the very city of Catania (Cannizzaro, this volume).

In a nutshell, this book is a must read for all academics desirous of expanding their academic horizon. It is an easy read with short and punchy chapters all providing a unique view on a particular issue of broader relevance. It is ultimately a key step towards connecting the dots of disaster studies beyond stereotypes and from culturally diverse scholarships.

## References

Cannizzaro, S., 2018, Geographical and Historical Processes of Human Settlements in the Etna Region. A Person-Place Relation Approach. In: Antronico, L., Marincioni, F. (Eds.), *Natural Hazards and Disaster Risk Reduction Policies*, Geographies of the Anthropocene book series, Il Sileno Edizioni, Rende, Italy.

Chester, D.K., Duncan, A.M., Dibben, C., Guest, J.E., Lister, P.H., 1999, "Mascali, Mount Etna Region Sicily: an example of *Fascist* planning during the 1928 eruption and its continuing legacy", *Natural Hazards*, 19: 29-46.

Chester, D.K., Duncan, A.M., Dibben, C.J.L., 2008, "The importance of religion in shaping volcanic risk perception in Italy, with special reference to Vesuvius and Etna", *Journal of Volcanology and Geothermal Research*, 172(4): 216-228.

Comité d'Information Sahel, 1975, *Qui se nourrit de la famine en Afrique?*, F. Maspero, Paris.

Copans, J. (Ed.), 1975, *Sécheresses et famines du Sahel*. F. Maspero, Paris.

Dibben, C.J.L., 2008, "Leaving the city for the suburbs: the dominance of 'ordinary' decision making over volcanic risk perception in the production of volcanic risk on Mt Etna, Sicily", *Journal of Volcanology and Geothermal Research*, 172(4): 288-299.

Forino, G., Bonati, S., Calandra, L.M., 2018, *Governance of risk, hazards and disasters*, Routledge, Abingdon.

Lavell, A., Franco, E., 1996, *Estado, sociedad y gestion de los desastres en America Latina*, Red de Estudios Sociales en Prevención de Desastres en América Latina, Lima.

Marchezini, V., Wisner, B., Londe, L.R., Saito, S.M., 2017, *Reduction of vulnerability to disasters: from knowledge to action*, RiMa Editora, São Carlos.

Maskrey, A., 1993, *Los desastres no son naturales*, Red de Estudios Sociales en Prevención de Desastres en América Latina, Lima.

Revet, S., Langumier, J., 2015, *Governing disasters: beyond risk culture*, Palgrave Macmillan, New York.

Vinet, F., 2017, *Floods*. Elsevier, Munich.

*Natural Hazards and Disaster Risk Reduction Policies* collects 14 original essays, of authors from all around the World, exploring strategies and ability of local communities to adjust to natural hazard and disasters. The volume, fostering the current scientific debate on disaster ecology, muses about the need for Homo sapiens to define its rights and responsibilities in environmental dynamics, including extreme events and disasters. In the end, the reflections about how to deal with hazard, vulnerability and disasters, highlights the ethical nature of disaster risk reduction; control of nature or adaptation to its cycles?

PEER-REVIEWED  
SERIES

**Loredana Antronico** is a Researcher of the Research Institute for Geo-Hydrological Protection of the Italian National Research Council (CNR). She is author or coauthor of several papers published in international journals or presented at international conferences and workshops in the following issues: soil erosion, debris flow and flood hazard on alluvial fans, landslide incidence, landslide susceptibility and hazard assessment, landslide monitoring, and recently, geo-hydrological risk perception. Loredana Antronico is coordinator of research projects, on some of the cited issues, funded by National and Regional Administrations.

**Fausto Marincioni** is an Associate Professor at the Università Politecnica delle Marche at Ancona (Italy), where he teaches and carries out research on disaster risk reduction. He holds a Ph.D. in geography from the University of Massachusetts (USA) and is an editor of the International Journal of Disaster Risk Reduction. Previous to the Università Politecnica delle Marche Marincioni has worked with the US Geological Survey, in Woods Hole, Massachusetts, and taught human and environmental geography at Long Island University (LIU Post) in New York.

IL **Sileno**  
Edizioni



ISBN 978-88-943275-2-6