

Emergency management, outreach, and communication activities for earthquakes: a preface

The special issue “Emergency management, outreach, and communication activities for earthquakes” of the Bollettino di Geofisica Teorica e Applicata (BGTA) includes manuscripts about activities carried out through the coordinated actions of researchers and civil protection managers. Specifically, this special issue focuses, within an organic framework, on activities recently developed by representatives of various institutions and research centres, including the Istituto Nazionale di Oceanografia e Geofisica Sperimentale of Trieste, the University of Basilicata, and the University of Udine.

As Guest Editors, we conceived this volume as a compendium of scientific papers about activities related to seismic risk management, under a title specifically addressing emergency, outreach, and communication efforts. Although these topics have already been extensively discussed in the scientific literature (e.g., Oliveira *et al.*, 2006; Joffe *et al.*, 2013), the objective of this volume is to emphasize the importance of transferring specialised knowledge gathered through research to practical applications in the field of seismic risk reduction.

For this reason, we saw fit to order the papers according to the **cycle of disaster management** (DM cycle, Fig. 1) specifically relating to seismic risk.

The first topic addressed in the volume is **prevention**.

We decided to open the volume by highlighting the importance of preliminary assessment of risk level, as a fundamental step in supporting decision-making to define effective strategies for risk reduction. Grimaz and Malisan (2016) illustrate the VISUS

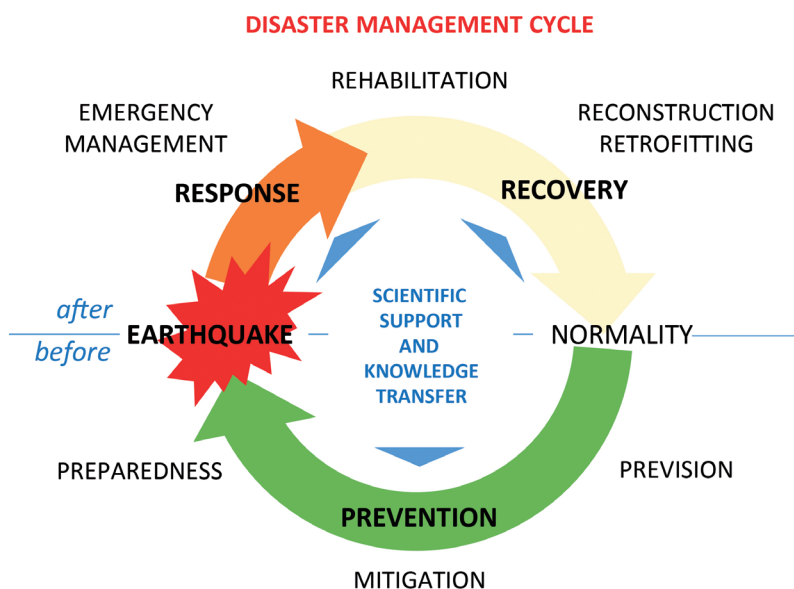


Fig. 1 - The contribution of research in the cycle of disaster management (DM cycle).

methodology, which is aimed at establishing a rational and effective decision-making support for the definition of safety-upgrading strategies of a multitude of buildings through a technical triage approach. The next paper (Grimaz *et al.*, 2016b) describes the ASSESS project for the holistic assessment of safety and intervention needs of more than 1,000 schools in the Friuli Venezia Giulia region (north-eastern Italy). The ASSESS project is the first application of the VISUS methodology at a large scale. It is worth noting that, as a result of the positive experience of the ASSESS Project, the VISUS methodology has been adopted by UNESCO within the Comprehensive School Safety Framework as a decision-making support tool in the definition of safety-upgrading strategies and for capacity-building purposes (<http://www.unesco.org/new/en/natural-sciences/special-themes/disaster-risk-reduction/geohazard-risk-reduction/capacity-building/safe-educational-facilities/>).

Also within the topic of risk prevention, the volume deals with the culture of safety and preparedness.

Peruzza *et al.* (2016) present the educational activities developed within the SISIFO project, which aims to disseminate knowledge about seismic safety at high schools. SISIFO is the acronym for “Sicurezza Sismica nella FOrmazione scolastica” (in English “seismic safety in the school curriculum”). During the school year 2013-2014, fourteen high schools in north-eastern Italy joined the project, working in different activities to comply with the school curricula. The students were engaged in labs on determining an earthquake source, in the detection of non-structural elements’ seismic safety, in monitoring local site and building response, and in risk perception surveys.

Specifically devoted to building the culture of prevention through risk communication activities is the paper by Postiglione *et al.* (2016), where the extensive Italian communication campaign “Io Non Rischio” (INR campaign, in English “I do not take risks”) is described. The basic point of the INR campaign is enhancing awareness that preventing and reducing earthquake consequences is everyone’s concern and task. The authors explain that learning how to mitigate the risks associated with earthquakes, through an effective diffusion of information on seismic risk, fosters collective and individual responsibility (e.g., see Masi *et al.*, 2014), thus encouraging a more active contribution from each and every citizen. The INR-T (T for “terremoti”, which is earthquakes in Italian) campaign was created and promoted by the Italian Department of Civil Protection (www.protezionecivile.it), the National Association for Public Assistance (www.anpas.org), the Institute of Geophysics and Volcanology (www.ingv.it), and the Network of the University Laboratories of Seismic Engineering (www.reluis.it), thus representing a prominent example of effective cooperation among civil protection institutions, the volunteer sector, and the scientific community.

Further on in this volume, the papers focus on the **response** to earthquakes, highlighting the support of scientific institutions in the in-the-field activities.

Grimaz *et al.* (2016a) describe the system set up by the Italian National Fire Service (CNAV) for the management of short-term countermeasures, called STCS (Short-Term Countermeasures System), as a result of a strategic collaboration between the University of Udine and CNAV begun with the L’Aquila earthquake (see Grimaz

and Maiolo, 2010; Grimaz, 2011). The STCS helps confront the emergency, both providing a quick characterization of the emergency scenario and realizing short-term countermeasures to secure hazardous situations. The paper shows the results obtained by the STCS during a full-scale exercise, and during national and international seismic emergencies.

Sandron *et al.* (2016) describe the innovative approach developed in the Friuli Venezia Giulia region (in north-eastern Italy) for a rapid estimation of the seismic impact, based on the active contribution of civil protection volunteers. The paper illustrates the methodology and its integration into the seismic emergency plans of the municipalities in the Friuli Venezia Giulia region, and discusses the first test, which took place during a full-scale exercise and subsequent tests that occurred during recent minor earthquakes affecting the area.

Masi *et al.* (2016) deal with one of the most critical issues in the post-earthquake emergency, shaping the response phase to prepare for the **recovery**. Such preparation for the recovery involves the assessment of the usability of buildings in order to resume daily activities as soon as possible in the affected area, while permitting people to go back to their houses safely. The paper analyses the experience acquired during the widespread survey campaigns performed in the aftermath of Italy's 2009 L'Aquila and 2012 Emilia earthquakes, and discusses the role of building vulnerability in the usability judgement.

Summarizing, the papers presented in this volume aim to underline the synergetic role of scientists and institutions in the fields of risk reduction and civil protection. It is worth noting that most of the studies presented here were publicly funded, or are the result of a collaboration between different institutions. The recurrence of some authors reflects the work of knowledge transfer carried out by the researchers, who are collaborating in synergetic and fully realized teamwork. The interdisciplinary collaboration fosters the development of innovative methods and procedures, thus permitting an improvement in the management of the different phases of the DM cycle. The collaborations involve, frequently as a result of specific agreements, the ReLUIIS Consortium, the Italian National Department of Civil Protection, the Italian National Fire Service, the Civil Protection of the Friuli Venezia Giulia region, the National Association for Public Assistance representing Civil Protection volunteers, the Istituto Nazionale di Oceanografia e Geofisica Sperimentale, the University of Basilicata, and the University of Udine.

Finally, the Guest Editors would like to express their gratitude to Dario Slejko, editor of the BGTA journal, for his kind invitation to prepare this special issue as a compendium of the activities undertaken in the last ten years by our consolidated interdisciplinary and inter-institutional working groups, as well as for his stimulating suggestions and, lastly, for his patience.

REFERENCES

- Grimaz S. and Maiolo A.; 2010: *The impact of the 6th April 2009 L'Aquila earthquake (Italy) on the industrial facilities and life lines. Considerations in terms of NaTech risk*. In: Chemical Engineering Transactions. Firenze Italia, 14-17.3.2010, Milano: Simberto Senni Buratti, Vol. 19, pp. 279-284, doi:10.3303/CET1019046.

- Grimaz S.; 2011: *Management of urban shoring during a seismic emergency: advances from the 2009 L'Aquila (Italy) earthquake experience*. Boll. Geof. Teor. Appl., **52**, 341-355, doi: 10.4430/bgta0005.
- Grimaz S. and Malisan P.; 2016: *VISUS: a pragmatic expert-based methodology for seismic safety assessment of school facilities*. Boll. Geof. Teor. Appl., **57**, 91-110.
- Grimaz S., Malisan P., Bolognese C., Ponticelli L., Cavriani M., Mannino E. and Munaro L.; 2016a: *The Short-Term Countermeasures System of the Italian National Fire Service for post-earthquake response*. Boll. Geof. Teor. Appl., **57**, 161-182.
- Grimaz S., Slejko D., Cucchi F., Barazza F., Biolchi S., Del Pin E., Franceschinis R., Garcia J., Gattesco N., Malisan P., Moretti A., Pipan M., Prizzon S., Rebez A., Santulin M., Zini L. and Zorzini F.; 2016b: *The ASSESS project: assessment for seismic risk reduction of school buildings in the Friuli Venezia Giulia region (NE Italy)*. Boll. Geof. Teor. Appl., **57**, 111-128.
- Joffe H., Rossetto T. and Adams J. (eds); 2013: *Cities at risk – Living with perils in the 21st century*. Springer, The Netherlands, 182 pp.
- Masi A., Santarsiero G., Digrisolo A., Chiauzzi L. and Manfredi V.; 2016: *Procedures and experiences in the post-earthquake usability evaluation of ordinary buildings*. Boll. Geof. Teor. Appl., **57**, 199-220.
- Masi A., Mucciarelli M., Chiauzzi L., Camassi R., Loperte G. and Santarsiero G.; 2014: *Emergency preparedness activities performed during an evolving seismic swarm: the experience of the Pollino (southern Italy) sequence*. Boll. Geof. Teor. Appl., **55**, 665-682.
- Oliveira C.S., Roca A. and Goula X. (eds); 2006: *Assessing and managing earthquake risk*. Springer, The Netherlands, 508 pp.
- Peruzza L., Saraò A., Barnaba C., Bragato P.L., Dusi A., Grimaz S., Malisan P., Mucciarelli M., Zuliani D. and Cravos C.; 2016: *Teach & Learn seismic safety at high school: the SISIFO project*. Boll. Geof. Teor. Appl., **57**, 129-146.
- Postiglione I., Masi A., Mucciarelli M., Lizza C., Camassi R., Bernabei V., Piacentini V., Chiauzzi L., Brugagnoni B., Cardoni A., Calcara A., Di Ludovico M., Giannelli M., Rita R. and La Pietra M.; 2016: *The Italian communication campaign “I do not take risks - Earthquake”*. Boll. Geof. Teor. Appl., **57**, 147-160.
- Sandron D., Rebez A., Mucciarelli M., Malisan P. and Grimaz S.; 2016: *Rapid estimation of the seismic impact through the active contribution of the Civil Protection volunteers*. Boll. Geof. Teor. Appl., **57**, 183-197.

S. Grimaz¹ and A. Masi²

¹ University of Udine, Italy

² University of Basilicata, Potenza, Italy