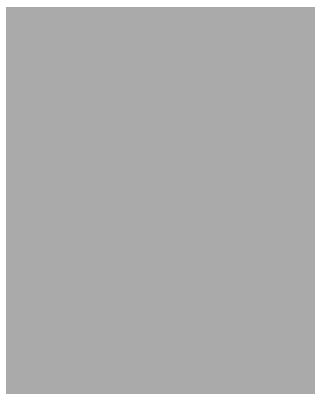


PERSONAL INFORMATION



Monica Ghirotti

Università di Ferrara, Dipartimento di Fisica e Scienze della Terra, Via Saragat, 1 44121 Ferrara (Italia)



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🔗 <https://scholar.google.it/citations?user=wf6RwAUAAAAJ&hl=it>

ORCID ID <http://orcid.org/0000-0002-8707-9158>

Date of birth Nationality Italy

Current Position Full Professor - University of Ferrara

RESEARCH INTERESTS

Summary

My research interests concern mainly rock and earth landslides in Alpine and Apennine areas. In particular, my area of expertise includes numerical modelling of large landslides for hazard assessment. The research focuses on the investigation of rock mechanics and the effects of endogenic and exogenic processes on the stability and progressive failure of natural and engineered slopes, real-time monitoring of landslides, also in mixed natural/cultural heritage sites. The Vajont landslide represented a privileged research topic over time. Other recent topics regard the evolution of large scale rock slope failures, analyzed by means of remote sensing techniques (TLS, UAV, infrared thermography) and focused both on the effect of slope kinematics on the long-term evolution of the slope and on remote detection of intact rock bridges on cliff faces. These processes are analyzed by combined field mapping - remote sensing – 2 or 3D numerical modeling study, deepening the knowledge about rock failure, slope kinematics and fragmentation mechanisms. I have been involved in numerous national and international projects aiming on landslide hazard and monitoring. I have published more than 60 scientific papers, on various topics in engineering geology.

Bibliometric Indicators

SCOPUS: h-index 13, citations 672, documents 32
Google Scholar: h-index 16, citations 1187, i10-index 23

WORK EXPERIENCE

From 30/03/2022 to today

Full Professor

Department of Physics and Earth Sciences, University of Ferrara

- Engineering geology
- Landslides
- Monitoring
- Remote sensing and numerical modelling

From 2014 to 2022

Associate Professor

Department of Physics and Earth Sciences, University of Ferrara

- Engineering geology
- Landslides
- Rock slope stability: remote sensing and numerical modelling

From 2005 to 2014

Associate Professor

Department of Biological, Geological, and Environmental Sciences, University of Bologna

- Engineering geology
- Slope stability: remote sensing, monitoring
- Numerical modelling

From 1995 to 2005

Assistant Professor

Department of Biological, Geological, and Environmental Sciences, University of Bologna

- Engineering geology

- Landslides

EDUCATION AND TRAINING

- 1986 **Master Degree in Geological Sciences with honours**
University of Ferrara
- 1988 **Master in "Laboratory research methods"**
University of Modena
- 1992 **PhD in Earth Sciences**
University of Parma
- 1992 **Master in "Soil conservation and environmental protection"**
Politecnico di Torino
- From 1994 to 1995 **Post-doctoral researcher**
University of Ferrara

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s)

COMPRESIONE		PARLATO		PRODUZIONE SCRITTA
Ascolto	Lettura	Interazione	Produzione orale	
English C1	C1	C1	C1	C1

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
Common European Framework of Reference for Languages

INSTITUTIONAL RESPONSIBILITIES

- 2003-2009 Member of the PhD School of Physical Modeling for Environmental Protection at the University of Bologna
- 2015-today Member of the PhD School of Earth and Marine Science at the University of Ferrara
- 2015-2018 Represent for students with disabilities, Department of Physics and Earth Sciences, University of Ferrara
- 2015-2018 Responsible for Scientific degrees project Geology, University of Ferrara
- 2021-today Vice-chairman of the Master Degree programme in Geological Sciences e BSc in Geological Sciences
- 2022-today Membro del Gruppo di Lavoro per il monitoraggio e l'aggiornamento del Gender Equality Plan GEP – Piano di Uguaglianza di Genere 2022/24 dell'Ateneo di Ferrara

NATIONAL AND INTERNATIONAL GRANTS (as principal investigator)

- 2002-2003 Local Responsible of the National Research Programs (PRIN 2001) with the project "Integrated real time landslide monitoring for reactivation process analysis" and "Geological features and initiation mechanisms of typical Alpine debris flows".
- 2004-2005 Local Responsible of the National Research Programs (PRIN 2003) with the project "Geological features and initiation mechanisms of typical Alpine debris flows".

- 2010-2012 Scientific responsible of the "EU-Canada programme TEP Transatlantic Exchange Partnership: geoNatHaz Enhancing International Earth Science Competence in Natural Hazards Research".
- 2016 Scientific responsible of the research "Valutazione della suscettibilità al ritiro e al rigonfiamento dei suoli argillosi: implicazioni sui parametri pedologici e vulnerabilità all'inquinamento degli acquiferi. Funded by Camera di Commercio, Industria, Artigianato e Agricoltura di Ferrara.
- 2017 Scientific responsible of the research "Initiation and Kinematics of large catastrophic rock slides: the role of geomorphologic and geologic controls on failure mechanism and of the geomorphic and rock engineering constraints on advanced numerical simulations". Funded by University of Ferrara FIR.
- 2019-today Scientific responsible for the University of Ferrara of the 3 year Project ALFONSA (ALta FORMazione e iNnovazione per lo Sviluppo Sostenibile dell'Appennino- 2019/21) funded by Emilia-Romagna region (European Social Fund 2014/2020).
- 2022-today Scientific responsible of the subproject "Management of geomorphological and hydrogeological risks" part of "Geological Risks and Environmental Sustainability - RiGeSA" Dipartimenti di Eccellenza project (Department of Physics and Earth Sciences, University of Ferrara) funded by MIUR .

TEACHING ACTIVITY

- Engineering Geology: Bachelor degree in Geological Sciences (University of Bologna, University of Ferrara)
- Engineering-Geological Survey: MSc degree in Geological Sciences (University of Bologna)
- Geological Survey: MSc degree in Geological Sciences (University of Bologna)
- Hydrogeological and Engineering Geology Numerical Modeling: MSc degree in Geological Sciences (University of Bologna, University of Ferrara)
- Principles of Soil and Rock Mechanics: Bachelor degree in Geological Sciences (University of Bologna)
- Advanced Engineering Geology: MSc degree in Geological Sciences (University of Ferrara)
- Applied Hydrogeology: MSc degree in Geological Sciences (University of Ferrara)
- Environmental law for Geology: MSc degree in Geological Sciences (University of Ferrara)
- Principles of Engineering Geology: Bachelor degree in Civil Engineering (University of Ferrara)
- Environmental Hydrogeology: Bachelor degree in Biotechnology (University of Ferrara)
- Supervisor of more than 100 Bachelor and MSc theses.
- Supervisor and co-supervisor of 8 PhD theses at University of Bologna, Ferrara, Simon Fraser University (BC, Canada).

ORGANIZATION OF SCIENTIFIC MEETINGS (in the last 10 years)

- 2011 Member of the Executive Committee of "5th International Conferences on Debris-Flow Hazard Mitigation" (Padova, 2011).
- 2013 Member of the Executive Committee of the International Congress "Vajont 2013" (Longarone, Padova, October 2013).
- 2023 Member of the Local organizing committee of the 6th World Landslide Forum (WLF6) (Florence, November 2023) and Organizer of one of its Field trip.

FURTHER INFORMATION

- Editorial Board 2013 Member of the 'International Advisory Committee of the "International Conference on Vajont – 1963-2013 Thoughts and analyses after 50 years since the catastrophic landslide" Italian Journal of

Engineering Geology and Environment (Book series 6).

2021 Guest Associate Editor in Environmental Informatics and Remote Sensing of Frontiers in Earth Sciences

2022 Lead Guest Editor Special Issue "Developments of Remote Sensing and Numerical Modeling Applications for Landslide Analysis" Frontiers in Earth Sciences <https://www.frontiersin.org/research-topics/25769/developments-of-remote-sensing-and-numerical-modeling-applications-for-landslide-analysis>

Memberships Member of the Executive Board of the National Foundation "GEOITALIA" (2014-2017)
Member of I.A.E.G. (International Association of Engineering Geology) (1998-2014)
Member of the Executive Board of AIGA (Italian Association of Engineering Geology) (2012-2015; 2018-2021).
Member of AIGA (Italian Association of Engineering Geology) (2012-today)

Evaluation of research results Reviewer for: Natural Hazards and Earth System Sciences, Engineering Geology, Rock Mechanics and Rock Engineering, Natural Hazard, Alpine and Mediterranean Quaternary, Italian Journal of Engineering Geology and Environment, Bulletin of Engineering Geology and Environment, Geotechnical and Geological Engineering, Zeitschrift für Geomorphologie, Geological Quarterly, Geomorphology, Geosciences, Resources, Journal of Surveying Engineering, Commun. Earth Environ, International Journal of Mining Engineering.

External reviewer for promotion to the rank of full Professor at foreign universities.

ATTACHMENT

- List of the top publications in the main research field (in the last ten years)

Personal data According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV

Date: Ferrara, 05/07/2023

Signature: Monica Ghirotti

List of the top publications in the main research field (in the last ten years)

1. GHIROTTI M., (2012). The 1963 Vaiont landslide, Italy. In: Clague J.J and Stead D. (Eds.), Landslides Types, Mechanisms and Modeling., Cambridge University Press, 359-372. ISBN: 9781107002067, <https://doi.org/10.1017/CBO9780511740367.030>.
2. GHIROTTI M., (2013). Grandi frane: disastri e processi del Novecento. In: (a cura di) Guidoboni E., Valensise G., L'Italia dei disastri. Dati e riflessioni sull'impatto degli eventi naturali 1861-2013. pp. 73-98, Bononia University Press, ISBN: 9788873959045.
3. Benedetti G., Bernardi M., Bonaga G., Borgatti L., Continelli F., Ghirotti M., Guerra C., Landuzzi A., Lucente C.C., Marchi G., (2013). San Leo: Centuries of Coexistence with Landslides. In: C. Margottini et al. (eds.), Landslide Science and Practice, 6: 529-537. Springer-Verlag Berlin Heidelberg 2013. ISBN: 9783642313189 https://doi.org/10.1007/978-3-642-31319-6_69
4. Wolter A., Havaej M., Zorzi L., Stead D., Clague J.J., GHIROTTI M., Genevois R., (2013). Exploration of the kinematics of the 1963 Vajont Slide, Italy, using a numerical modelling toolbox. It. J. of Engineering Geology and Environmental, 6: 599-612, Sapienza Università Editrice, doi: 10.4408/IJEGE.2013-06.B-58.
5. Massironi M., Zampieri D., Superchi L., Bistacchi A., Ravagnan R., Bergamo A., GHIROTTI M., Genevois R., (2013). Geological structures of the Vajont Landslide., It. J. of Engineering Geology and Environmental, 6: 573-582, Sapienza Università Editrice, doi: 10.4408/IJEGE.2013-06.B-55.

6. GHIROTTI M., Masetti D., Massironi M., Oddone M., Sapigni M., Zampieri D., Wolter A., (2013). The 1963 Vajont Landslide (Northeast Alps, Italy) post conference field trip (October 10th, 2013), *It. J. of Engineering Geology and Environmental*, **6**: 635-646, Sapienza Università Editrice, doi: 10.4408/IJEGE.2013-06.B-61.
7. Piccinini L., Berti M., Simoni A., Bernardi A.R., GHIROTTI M., Gargini A., (2014). Slope stability and groundwater flow system in the area of Lizzano in Belvedere (Northern Apennines, Italy). *Engineering Geology*, **183**: 276-289, <https://doi.org/10.1016/j.enggeo.2014.09.002>.
8. Bacenetti M., Spreafico M. C., Elettri F., Giardino M., Perotti L., Borgatti L., GHIROTTI M., Ratto S., (2015). Geomorphological Analyses, Geomatic Surveys and Numerical Modelling for the Characterization of the Chervaz Deep-Seated Gravitational Slope Deformation, Chambave (AO). In: *Engineering Geology for Society and Territory*, Lollino G. et al. (eds), **2**: 565-569, Springer International Publishing, ISBN: 9783319090566, https://doi.org/10.1007/978-3-319-09057-3_93
9. Branchesi B., GHIROTTI M., (2015). Disastri idrogeologici: la prevedibilità come "responsabilità" nei processi penali. In: *Prevedibile/ Imprevedibile Eventi estremi nel prossimo futuro*, a cura di: Emanuela Guidoboni, Francesco Mulargia, Vito Teti. SAGGI, **382**: 115-160, Rubbettino Editore, ISBN: 9788849846539.
10. Spreafico M.C., Bitelli G., Borgatti L., Cervi F., Francioni M., GHIROTTI M., Girelli V.A., Lucente C.C., Tini M.A., Stead D., (2016). Back Analysis of the 2014 San Leo Landslide Using Combined Terrestrial Laser Scanning and 3D Distinct Element Modelling. *Rock Mechanics and Rock Engineering*, **49**: 2235-2251. <https://doi.org/10.1007/s00603-015-0763-5>
11. Wolter A., Stead D., Ward B.C., Clague J.J., GHIROTTI M., (2016). Engineering geomorphological characterisation of the Vajont Slide, Italy, and a new interpretation of the chronology and evolution of the landslide. *Landslides*, **13**(5): 1067-1081. <https://doi.org/10.1007/s10346-015-0668-0>
12. Spreafico M.C., Franci F., Bitelli G., Borgatti L., GHIROTTI M., (2017). Intact Rock Bridge Breakage and Rock Mass Fragmentation upon Failure: Quantification using Remote Sensing Techniques. *The Photogrammetric Record*, **32** (160): 513-536. <https://doi.org/10.1111/phor.12225>
13. Donati D., Stead D., Brideau M.A., GHIROTTI M., (2017). A remote sensing approach for the derivation of numerical modelling input data: insights from the Hope Slide, Canada. In: *ISRM AfriRock 2017 - Rock Mechanics for Africa*. International Society for Rock Mechanics Ed., 861- 878. ISBN: 978-1-920410-99-5.
14. Spreafico M.C., Wolter A., Picotti V., Borgatti L., Mangeney A., GHIROTTI M., (2018). Forensic investigations of the Cima Salta Landslide, northern Italy, using runout simulations. *Geomorphology*, **318**: 172-186. <https://doi.org/10.1016/j.geomorph.2018.04.013>
15. Francioni M., Sciarra N., GHIROTTI M., Borgatti L., Salvini R., Calamita F., (2019). The impact of new technologies in the engineering classification of rock masses. *Italian Journal of Engineering Geology and Environment*, Special Issue **1**: 33-39. DOI: 10.4408/IJEGE.2019-01.S-06.
16. Rossato S., GHIROTTI M., Gabrieli F., Livio F., Bovo F., Brezzi L., Campedel P., Cola S., Ivy-Ochs S., Martin S., Mozzi P., Pasuto A., Rigo M., Simonini P., Surian N., Viganò A., Vockenhuber C., Wolter A., (2020). Learning from the past to face the future: landslides in the Piave Valley (Eastern Alps, Italy). *Alpine and Mediterranean Quaternary*, **33** (2): 209-228. <https://doi.org/10.26382/AMQ.2020.14>
17. GHIROTTI M., Borgatti L., Marcato G., (2020). One of the hazardous neighbours of the Vajont Landslide: the historical M. Salta rock-block slide-rock fall. *Alpine and Mediterranean Quaternary*, **33** (2): 157-164. <https://doi.org/10.26382/AMQ.2020.11>
18. Donati D., Stead D., Brideau M.A., GHIROTTI M., (2021). Using pre-failure and post-failure remote sensing data to constrain the three-dimensional numerical model of a large rock slope failure. *Landslides*, **18**: 827-847. <https://doi.org/10.1007/s10346-020-01552-x>
19. Bar N., Borgatti L., Donati D., Francioni M., Salvini R., GHIROTTI M., (2021). Classification of natural and engineered rock slopes using UAV photogrammetry for assessing stability. *IOP Conference Series: Earth and Environmental Science*, **833** (1), art. no. 012046 DOI: 10.1088/1755-1315/833/1/012046
20. Donati D., Borgatti L., Stead D., Francioni M., GHIROTTI M., Martgottini C., (2022). The characterization of slope damage at the Civita di Bagnoregio plateau using a remote sensing approach. *Third International Symposium on Geotechnical Engineering for the Preservation on Monuments and Historic Sites*. AGI, Napoli 22-24 June 2022. DOI: 10.1201/9781003308867-35

21. GHIROTTI M., Donati D., Stead D. (2023). Editorial: Developments of remote sensing and numerical modeling applications for landslide analysis. *Frontiers in Earth Science*, 10. ISSN=2296-6463 DOI: 10.3389/feart.2022.1129733