

(09/07/2024)

1. GENERAL

Alessandro Corsini

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2. SUMMARY OF SCIENTIFIC AND TEACHING ACTIVITIES

Alessandro Corsini is Full Professor at the Department of Chemical and Geological Sciences of the University of Modena and Reggio Emilia, in the scientific discipline GEO/05 Applied Geology. He began his career as a researcher at GEO/05 in 2001. He graduated in Geological Sciences and has a PhD in Earth Sciences.

Since 2018 he has been Chairman of the Board of Interclass in Geological Sciences (L-34 and LM-74) and has held other positions of academic responsibility. He is a member of the College of Doctoral Professors of Research from cycle 20 to the current cycle 36. He has held research assignments at qualified foreign research institutes and has participated as an expert in institutional activities of scientific evaluation. He has been a member, and has played roles of responsibility, of scientific associations at the national and international level. He was responsible for organizing and convener of international and national conferences, and has held scientific reports both by invitation and as a speaker. He works as editor and reviewer for international journals. The scientific activity concerned mainly the analysis of landslides, including studies aimed at the analysis, prediction, prevention and mitigation of hydrogeological risk and studies aimed at rebuilding the groundwater circulation with respect to the stability of the slopes. The scientific activity also concerned the assessment of water resources in mountain areas, also with respect to their response to climate changes. Finally, marginally, the activity dealt with topics specific to technical and seismic geology. The scientific activity has been carried out in the framework of international and national research projects in which he has often taken on roles of scientific responsibility, and of numerous researches entrusted by qualified public and private institutions, of which he has been scientific director. The development of such projects and research has involved mentoring a significant number of PhD students, research fellows and collaborators.

The scientific production consists of a total of over 160 publications, most of them indexed in Scopus. In Scopus, as of 09/07/2024, the H-index is 28 with 102 documents and 2479 total citations.

The teaching activity has been continuous since AA 2001/02, with the title of various courses at the University of Modena and Reggio Emilia, as part of the Degree and Master's Degree Courses in Geological Sciences, Sciences and Geological Technologies, Civil and Environmental Engineering, Agricultural Sciences and Technologies (L-34, L-07, L-25, LM-74, LM-35, LM-23/35). He was also a lecturer at the University of San Marino for his degree in Civil Engineering. He has lectured on dozens of bachelor's and master's theses.

3. QUALIFICATIONS

Graduated with honors in Geological Sciences at the University of Modena in 1996, he obtained a PhD in Earth Sciences at the University of Bologna (headquarters of the University of Modena) in 2000.

He obtained National Scientific Qualification for the role of First Rank in the Competition Sector 04/A3 - Applied Geology, Physical Geography and Geomorphology in the ASN rounds 2012, 2013 and 2016.

He obtained his Habilitation to the Profession of Geologist in 1999 at the University of Parma.

The detailed list is given in Annex 1

4. INSTITUTIONAL, ORGANISATIONAL, SERVICE AND THIRD MISSION ROLES AND RESPONSIBILITIES

From 2021 he is Full Professor in SSD GEO/05 - Applied Geology (full-time) at the Department of Chemical and Geological Sciences of the University of Modena and Reggio Emilia. (2001-14 University Researcher and 2014-2021 Associate Professor in the same SSD and University).

Since November 2018 he has been Chairman of the Board of Interclass of the Degree and Master's Degree Courses in Geological Sciences (L34 and LM 74) at the Department of Chemical and Geological Sciences of the University of Modena and Reggio Emilia.

Since 2017 he has been a member of the University Housing Commission.

From 2016 to 2018 he was Chairman of the Development and Research Committee of the Department of Chemical and Geological Sciences.

From 2014 to 2018 he was Secretary of the ESS (Earth System Sciences) Doctoral School and of the subsequent M3ES (Models and Methods for Materials and Environmental Sciences) School.

He was a member of the Board of the Department of Earth Sciences (2002-2005).

He was a member of the Quality Assurance Group operating in the 2015 accreditation phase of the cds in Geological Sciences, and is currently a member of the Development and Research Committee of the Department of Chemical and Geological Sciences.

With regard to Third Mission activities, he is a member of the Third Mission Commission of the Department of Chemical and Geological Sciences, and currently carries out orientation activities as Chairman of the Interclass Council, also taking an interest in the programming of the activities of the PLS (Science Degree Plan) project.

5. RESEARCH TOPICS

Landslides and Hydrogeological Risk (LS-RISK)

The scientific activity mainly concerned the analysis of landslides, with studies aimed at:

- (a) Landslide and hydrogeological risk analysis, prediction, prevention and mitigation [LS-RISK(a)].
- (b) reconstruction of groundwater circulation in relation to slope stability [LS-RISK(b)].

The scientific activity has been carried out within the framework of international and national research projects for which he has had in large part scientific responsibility, and of numerous researches entrusted by qualified public and private institutions, of which he has been scientific responsible. The activities considered various types of landslide phenomena, including large landslides of sliding-ground casting type with slow or moderate kinematic, deep sliding in slow kinematic rock with potential rapid evolution, collapses of rock, superficial flows of soil, debris flows, with study sites in the northern Apennines and the eastern Alps.

Within the scope of LS-RISK(a), the research was based on geological-technical surveys and thematic cartography (including mapping on a geomorphological basis physical dating for the reconstruction of their temporal recurrence in the long term) the implementation of geognostic and geophysical site surveys, monitoring with innovative site and remote sensing techniques, GIS and geotechnical numerical modelling, deterministic analysis of triggers, definition of hazard and risk and of the most appropriate mitigation works, including structural ones, and estimation of their effectiveness. Among the innovative methods of surveying, mapping and monitoring applied in the course of the research are laser scanner systems (Lidar airborne and terrestrial), radar interferometry (satellite and terrestrial), Total Robotic Stations, Permanent GPS, sensor networks for seismic noise measurements induced by movements, wireless node networks for the management of geotechnical sensors, TDR hole systems. In addition to the analysis of the data provided in a direct way by these systems, the research also concerned the development of post-processing algorithms aimed at obtaining significant information about the kinematics of the phenomena studied. Among modeling methodologies, bi-variate systems, neural networks, and deterministic approaches to landslide susceptibility cartography in GIS environments, and numerical models of slope stability have been applied. With regard to the LS-RISK purpose(b), the research was based on the use of hydrogeological monitoring systems, chemical and isotopic analyses of groundwater, tracers, numerical flow modelling, and have allowed to reconstruct hydrogeological mechanisms of water recharge of landslide bodies connected to the ascent of deep fluids and recharge at the slope scale, which affect the development and reactivation of large deep landslides with complex kinematics.

Evaluation of water resources in mountain areas (HYDR-RES)

The scientific activity also concerned the evaluation of water resources in mountain areas, with particular reference to the mapping of the probable location of sources in mountain areas through the application of geo-methods multivariate statistics of correlation between sources and predisposing factors of geological and hydrogeological type, the characterization and monitoring of outflows and characteristic parameters of the sources, also for the purposes of the evaluation such-of their possible response to climate change. The distribution of springs in mountain areas has also been linked to the basic outflows of watercourses through the development of innovative methods. Finally, techniques have also been applied to assess the vulnerability of areas of foothill alluvial troughs.

Technical and Seismic Geology (TS-GEO)

The scientific activity has concerned aspects related to technical and seismic geology, including the analysis of the interactions between subsoil (understood from the geological-technical and hydrogeological point of view) and airport infrastructure works (floorings and outflow nets, rolling tanks for first rain water) and river barriers in the conoid area. Moreover, researches have been carried out finalized to the evaluations on wide area through geostatistical methods of the susceptibility to the phenomena of co-seismic liquefaction in reference to the areas interested from the earthquake Emilia 2012.

6. SCIENTIFIC PUBLICATIONS

The scientific production has been continuous and significant since 1997 and is the result of scientific collaborations at national and international level, as well as research projects and research assignments in which he participated and, in many cases, coordinated.

The scientific production consists of a total of over 160 publications, In Scopus, as of 09/07/2024, the H-index is 28 with 102 documents and 2479 total citations. (Author/Res. Id: 36852482900).

7. PARTICIPATION IN EDITORIAL COMMITTEES OF PEER-REVIEW JOURNALS

Since 2019 he has been Handling Editor for the international magazine ISI "Landslides" (ISSN: 1612-5118 - Springer-Verlag).

He has been Guest Editor of Special Issue "Mountain Landslides: Monitoring, Modeling, and Mitigation" of the international magazine ISI "Geosciences" (ISSN2076-3263 - <http://www.mdpi.com/si/14011>)

He is currently Guest Editor of Special Issue "Multitemporal Remote Sensing: Methods and Applications for Geomorphology and Engineering Geology" for the international magazine ISI "Remote Sensing" (ISSN2072-4292, [#Planned](https://www.mdpi.com/journal/remotesensing/special_issues/Multitemporal_RemoteSensing))

He carries out and has continuously carried out peer-review activities for several international ISI journals.

8. ORGANISATION OF CONFERENCES AND PARTICIPATION AS CONVENER OR SPEAKER

He was the organizer of the international conference "CC-WARE: Mitigating Vulnerability of Water Resources under Climate Change - mid-term Conference" (19.-20.03.2014, Modena).

He has been co-Convener of sessions in International and National Conferences, and has also held several invited papers (Plenary Lectures and keynotes) in Conferences of international importance.

He has been Oral Speaker at various international, national and regional conferences (in particular, in the latter case, at the invitation of OGER, Order of Geologists of Emilia-Romagna).

9. SCIENTIFIC RESPONSIBILITY FOR INTERNATIONAL AND NATIONAL RESEARCH PROJECTS ELIGIBLE FOR FUNDING ON THE BASIS OF COMPETITIVE CALLS

Internationally he has been scientific manager of UNIMORE (operating as project partner) in the project "MONITOR II: Practical Use of Monitoring in Natural Disaster Management" (2009-12, SOUTH EAST EUROPE Transnational Cooperation Programme) and scientific manager of UNIMORE (operating as external expert) in the projects "CC-WARE - Mitigating Vulnerability of Water Resources under Climate Change" (2013-14 - SOUTH EAST EUROPE Transnational Cooperation Programme) and "MONITOR: Hazard Monitoring for Risk Assessment and Risk Evaluation" (2006-08 - INTERREG IIIB CADSES). He was also responsible for the scientific management of UNIMORE (operating as project partner) in the bilateral Italy-Germany "Geotechnical and Numerical Modelling of deep-seated earthflows- assessment and mitigation" (2006-2007 - CRUI, Vigoni).

At the national level he is presently scientific manager of UNIMORE unit in the project LASST: evaluating Landslide Sediment Supply to streams and connectivity for sustainable, basin-wide sediment management (bando PRIN2022). He has been scientific manager of the project "Analysis and control of landslides through wireless and airborne monitoring systems" (2009-11, PRIN Call 2007) and of the project "MHYCONOS Mapping the hydrological control on Shallow landsliding" (2018 - 2020, Cariplo Foundation Call 2017). He was also coordinator of the project "Numerical hydrogeological and geotechnical modelling of slopes at great risk of landslide" (2008-09 - Fondazione Cassa di Risparmio di Modena) and the project "Analysis of the causes, geological mechanisms and possible precursors of dangerous phenomena in the areas of mud volcanoes, for environmental protection, safe use and safety of surrounding settlements (2016-17, FAR 2015).

10. RESPONSIBILITY FOR SCIENTIFIC STUDIES AND RESEARCH ENTRUSTED BY QUALIFIED PUBLIC OR PRIVATE INSTITUTIONS

He has been responsible for over 50 studies and scientific research entrusted by qualified public or private institutions through Conventions, Contracts and Memoranda of Understanding.

The framework conventions (2011-15 and 2016-2021) are particularly important for the development of "Specialized activities for the support to the prediction and emergency planning of civil protection in hydrogeological risk" on behalf of the Regional Agency for Territorial Security and Civil Protection, Emilia-Romagna Region.

There are also numerous other studies carried out on behalf of various territorial offices of the Regional Agency for Territorial Security and Civil Protection of the Emilia-Romagna Region (and their previous names), the Geological Service, Seismic and soil of the Emilia Romagna Region, the Po River District Basin Authority, the Po River Interregional Agency (AIPO), the Geology and Material Testing Office of the Autonomous Province of Bolzano, the Technical Directorate of ARPAE Emilia Romagna, of the Provinces of Modena and Reggio Emilia and various municipalities. Among the private institutions that have commissioned studies for which he was responsible, the most relevant are Autobrennero s.p.A, Trentino Trasporti S.p.A. and Bologna Airport SpA.

11. PARTICIPATION IN INTERNATIONAL AND NATIONAL RESEARCH PROJECTS ELIGIBLE FOR FUNDING ON THE BASIS OF COMPETITIVE CALLS

At the International level he has been a member of the UNIMORE Working Group in Projects: "MOUNTAIN RISKS: from forecasting to management and governance" (2007-11, Marie Curie TMN - FP6-mobility call) (in which he is also a Tutor State of a TMN PhD student); "OASYS: Integrated Optimization of Landslide Alarm Systems" (2002-05, Fifth Framework Programme FP5); "ALARM: Landslide and Mitigation Risk Assessment in Mountain Areas" (2001-04, Fifth Framework Programme FP5); "ELANEM: Euro Latin America Network for Environmental Management" (2001-03, EU - INCO programme); "GETS: a European research network for the application of geomorphology to environmental impact assessment" (1998-01, FP4 - TMR programme); NEWTECH: new technologies for the assessment and management of landslide risks in Europe (1996-1999, fourth FP4 framework programme).

At the National level he has been a member of the UNIMORE Working Group in Projects financed in the MURST-COFIN 2002 and PRIN 2005 calls, as well as in CNR and CNR-GNDICI Projects of different years.

12. RESEARCH ASSIGNMENTS IN QUALIFIED UNIVERSITIES AND FOREIGN RESEARCH INSTITUTES

During 2000 he was Visiting Scientist at the International Institute for Geo-Information Science and Earth Observation in Enschede, Holland), with a contract for research activities for "Geomorphological impact assessment of the TAV in the

province of Modena" in the European Project GETS "A European research network for the application of Geomorphology to Environmental Impact Assessment").

Previously, in 1996-1997 he carried out research at the Forshungstelle Archaeometrie am Max Plank Institute in Heidelberg, Germany, being the winner of a scholarship for further education abroad, carrying out related activities "Applications of new physical dating techniques for reconstructing the spatial and temporal Occurrence of landslides in the Dolomites (NE Italy)".

13. PARTICIPATION AS AN EXPERT IN INSTITUTIONAL SCIENTIFIC EVALUATION ACTIVITIES

Since 2020 he has been a Member of the External Advisory Board of the European Project "EPOS SP" (European Plate Observing System - Sustainability Phase) (Horizon 2020 - INFRADEV-3 call).

He has been an expert evaluator in competitive tenders for: (i) National Programme for Recruitment and Incorporation of Human Resources of the Agencia Nacional de Evaluación y Prosepectiva (ANEP) of Spain (in 2006); (ii) Czech Science Foundation (GACR) of the Czech Republic (in 2018).

Since 2011 he has participated continuously in technical committees of hydrogeological risk assessment on behalf of the Agency for Territorial Security and Civil Protection of the Emilia-Romagna Region. This activity is part of multi-annual framework agreements for which he is scientific responsible for the University.

In 2020, she served as Chairman of the Board of Examiners for the Po River District Basin Authority, in competition for selection of technical officer geologist.

14. PARTICIPATION IN DOCTORAL PROGRAMMES BOARD

He has continuously participated in the Board of the following doctorates UNIMORE:

- PhD in Earth Sciences (20th to 21st cycles);
- ESS Doctoral School - Earth System Sciences: Environment, Resources and Cultural Heritage (22nd to 28th cycles);
- Doctoral School M3ES - Models and Methods for Material and Environmental Sciences (continuous from XXIX to XL cycle).

15. RESPONSIBILITY/TUTORING OF DOCTORAL THESES

He has worked as Tutor of 13 PhD Theses between cycle XVI and XXXV, as part of the PhD in Earth Sciences, the ESS Doctoral School (Earth System Sciences), the M3ES Doctoral School (Models and Methods for Material and Environmental Sciences).

The thesis mainly dealt with topics related to the study of landslides and hydrogeological risk, hydrogeology of the slopes, sources and outflows, local seismic response and co-seismic effects.

16. RESPONSIBILITY/TUTORING OF RESEARCH GRANTS

He has served as Tutor and Research Fund Holder for a total of 22 years of Research Grants of the University of Modena and Reggio Emilia. The research grants relate to ten calls that have been made to seven different beneficiaries.

The Research Grants, two of which are active, dealt with issues related to hydrogeological risk.

17. RESPONSIBILITY/MENTORING OF RESEARCH COLLABORATIONS

He has played the role of Tutor and Holder of the Research Funds for a total of 14 months of Research Collaboration Contracts of the University of Modena and Reggio Emilia, referring to four calls that have led to 3 different beneficiaries.

The collaborations dealt with issues related to hydrogeological risk.

18. PARTICIPATION IN NATIONAL AND/OR INTERNATIONAL SCIENTIFIC ASSOCIATIONS

He was a member of the Board of Directors of AIGA (Italian Association of Applied and Environmental Geology) from 2003 to 2006.

He is a member of AIGA (Italian Association of Applied and Environmental Geology) and was a member of IAEG (International Association for Engineering Geology and the Environment) and a member of CERG (European Centre on Geomorphological Hazards).

19. TEACHING ASSIGNMENTS AT QUALIFIED ITALIAN UNIVERSITIES

Since 2001 he has carried out continuous and consistent teaching activities at the University of Modena and Reggio Emilia, assuming the title of 18 different educational activities related to the GEO/05 sector (with an average load of over 15 ECTS/year) in the context of:

- Degree in Geological Sciences (L-34), Master's Degree in Geological Sciences and Technologies (LM-74), Master's Degree in Geosciences, Georisks and Georesources (LM-74), Department of Chemical and Geological Sciences UNIMORE (formerly Department of Earth Sciences until 2012);
- Degree in Environmental Engineering (L-07), Civil and Environmental Engineering (L-07), Master's Degree in Engineering for Environmental Sustainability (LM-35), Master's Degree in Civil and Environmental Engineering (LM-23/35) of the Engineering Department Enzo Ferrari of UNIMORE.

- Degree in Agricultural Sciences and Technologies (L-25) of UNIMORE of the former. Faculty of Agriculture.

He also taught modules in the Specialization Course in Territorial, Environmental and Health Emergencies (EmTASK I and EmTASK II - Scientific-Technological Address) of UNIMORE.

OPIS evaluations of the lessons have never shown criticality on the indicators of overall satisfaction.

20. TEACHING ASSIGNMENTS TO QUALIFIED FOREIGN UNIVERSITIES

Since 2012 he has been a lecturer for 6 ECTS at the University of San Marino for his degree in Civil Engineering (L-07) and has held 2 different educational activities in the GEO/05 sector.

21. BACHELOR AND MASTER THESIS SUPERVISOR

Since 2002, he has been a lecturer in over fifty three-year and master's degree theses for the courses of Geological Sciences and Master's Degrees in Geological Sciences and Technologies.

He was also a speaker of about ten bachelor's and master's degree theses for the degree courses in Environmental Engineering, Civil and Environmental Engineering and Master's Degree in Engineering for Environmental Sustainability

CV BREVE

Alessandro Corsini è Professore Ordinario di Geologia Applicata (GEO/05) al Dipartimento di Scienze Chimiche e Geologiche dell'Università degli Studi di Modena e Reggio Emilia. Dal 2018 è Presidente del Consiglio di Interclasse in Scienze Geologiche. L'attività scientifica riguarda principalmente l'analisi di fenomeni franosi, comprendendo studi finalizzati alla analisi, previsione, prevenzione e mitigazione del rischio idrogeologico e studi finalizzati alla ricostruzione della circolazione idrica sotterranea rispetto alla stabilità dei versanti. L'attività scientifica ha inoltre riguardato la valutazione di risorse idriche in aree montane, anche rispetto la loro risposta alle variazioni climatiche. Infine, marginalmente, l'attività ha affrontato tematiche proprie della geologia tecnica e sismica. Tale attività è stata svolta nell'ambito di progetti di ricerca internazionali e nazionali nei quali ha spesso assunto ruoli di responsabilità scientifica, e di numerose ricerche affidate da qualificate istituzioni pubbliche e private. Lo svolgimento di tali progetti e ricerche ha comportato il tutorato di un significativo numero di dottorandi, assegnisti di ricerca e collaboratori. Ha prodotto complessivamente oltre 160 pubblicazioni, la maggior parte indicizzate in Scopus (al 15/03/2021 H-index 26, 96 documenti, 1948 citazioni). È componente di Collegio dei Docenti di Dottorati di Ricerca. L'attività didattica presso l'Università degli Studi di Modena e Reggio Emilia è nell'ambito dei Corsi di Laurea e di Laurea Magistrale in Scienze Geologiche, Scienze e Tecnologie Geologiche, Ingegneria Civile ed Ambientale.

Alessandro Corsini is Full Professor of Applied Geology (GEO/05) at the Department of Chemical and Geological Sciences of the University of Modena and Reggio Emilia. Since 2018 he has been Chairman of the Board of the bachelor and master degrees in Geological Sciences

The scientific activity mainly concerns the analysis of landslides, including studies aimed at the analysis, prediction, prevention and mitigation of hydrogeological risk and studies aimed at rebuilding the groundwater circulation with respect to the stability of the slopes. The scientific activity also concerned the assessment of water resources in mountain areas, also with respect to their response to climate changes. Finally, marginally, the activity dealt with topics specific to technical and seismic geology. This activity has been carried out in the framework of international and national research projects in which he has often assumed scientific responsibilities, and of numerous researches entrusted by qualified public and private institutions. The development of such projects and research has involved mentoring a significant number of PhD students, research fellows and collaborators. He has produced a total of over 160 publications, most indexed in Scopus (as of 15/03/2021 H-index 26, 96 documents, 1948 citations). He is a member of the College of PhD Professors. The teaching activity at the University of Modena and Reggio Emilia is part of the Degree and Master Degree Programmes in Geological Sciences, Geological Sciences and Technologies, Civil and Environmental Engineering.