

## PERSONAL INFORMATION

## Alessandro Tibaldi

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

ORCID ID 0000-0003-2871-8009

Date of birth 26/01/1961 | Nationality Italy

Current Position Full Professor at University Milan Bicocca

## RESEARCH INTERESTS

## Summary

My research interests concern studies of structural geology and volcanotectonics applied to geohazards using a combination of field lithostratigraphic data, structural and morphostructural mapping, drone and other remote-sensing surveys, analogue and numerical modelling. My focus has been on improving the knowledge on the processes that guide the development of surface deformations, mainly in the form of faulting and fissuring, in relation to tectonics and magma uprising and the growth of volcanic edifices. Special emphasis has been placed on the analysis of the relations between shallow deformation and the emplacement of subsurface magmatic bodies, like sills, dikes and laccoliths. I also studied landslides and major lateral collapses of volcanoes for 15 years, with special attention to the relations with magma, gravity and tectonic forces. Quantitative studies were also dedicated to the analysis of relationships between stress state and active folding and faulting. I have coordinated 35 national and international projects spanning from EU, to NATO, IGCP, INGV, MIUR, etc. Since 2015 I am Chairperson of Committee of National Representatives of International Lithosphere Program, and since 2010 I am Leader of Task Force II "Deformation and magmatic processes from the lithosphere to the surface: integrated multidisciplinary approaches". I have published more than 190 scientific papers in ISI journals on various topics in structural geology and volcanology.

## Bibliometric Indicators

SCOPUS: h-index 41, citations 4777

Google Scholar: h-index 49, citations 6885, i10-index 124

## WORK EXPERIENCE

From 01/01/2017 to today

## Full Professor

Department of Earth and Environmental Sciences, University of Milan-Bicocca

- Teaching of courses in "Structural geology", "Neotectonics and volcano-tectonics", "Volcano geology"

From 2010 to 2020

## Ad-hoc Graduate Faculty

Department of Geological/Mining Engineering and Sciences, Michigan Technological University, USA

- Visiting scientist and tutoring of 30 Msc within an international degree program in Earth Sciences

From 2000 to 2016

## Associate Professor

Department of Geological Sciences, University of Milan-Bicocca, Milan

- Teaching of courses in "Structural geology", "Remote sensing and aerial photogeology", and "Field mapping"

From 2006 to 2013

## Visiting professor

New York State-Buffalo University, USA; Portsmouth University, UK; Brunel University, UK

- Teaching courses on various aspects of volcanic hazard assessment

From 2005 to 2008

## Vice-Director of Milan Bicocca University Dating Center

From 1993 to 1999 **Researcher and Assistant professor**  
 Coordination of researches and technological methodologies on different dating techniques  
 Department of Geological Sciences, University of the Studies of Milan

**EDUCATION AND TRAINING**

- 1986 **Msc Degree in Geology**  
 Università degli Studi di Milano
  - Thesis: "Structural development of the Tunisian Atlas by structural data and remote-sensing".
- 1991 **Doctorate in Earth Sciences**  
 Università degli Studi di Milano
  - Thesis: "Control of strike-slip tectonics on volcanism in the Trans-Mexican Volcanic Belt and in the Ecuadorian Arc".
- 1991-1992 **Post-PhD fellowship**  
  - National Group of Volcanology, Rome

**PERSONAL SKILLS**

Mother tongue(s) Italian  
 Other language(s)

	COMPRESIONE		PARLATO		PRODUZIONE SCRITTA
	Ascolto	Lettura	Interazione	Produzione orale	
English	B2	C2	B2	B2	C2
Spanish	C1	C2	C1	C1	B2

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

**INSTITUTIONAL RESPONSIBILITIES**

- 2021-today **Cofounder of the Laboratory of Virtual Reality of the University of Milan Bicocca.**  
 This laboratory is equipped with a series of PC adapt to 3D processing and visualization of data, 3D projector and screen, glasses for 3D vision, and a special software appositely developed for navigation in 3D environments reconstructed based on drone surveys and application of Structure from Motion techniques. This laboratory is used for teaching and for research especially in volcanotectonics, where users can explore 3D environments and take precise measurements by a series of software tools. The navigation software and dedicated tools have been produced during a project coordinated by myself (2017-19 MIUR Law 113/91 D.D. 1524/08-07-2015 T4, "Agreement University of Milan Bicocca - Consortium Cometa for the evaluation of leading-edge interactive technologies for improving teaching and popularization of science"). This software obtained also the Deposited patent n. 102020000018367 entitled "Platform and Methods for Immersive Virtual Reality" under the inventors A. Tibaldi et al.
- 2001-today **Founder and coordinator of the Laboratory of Structural Geology and Volcanotectonics of the University of Milan Bicocca.**  
 This laboratory is equipped with a series of apparatuses devoted to analogue and numerical modelling of volcanotectonic phenomena. The analogue instruments are used to carry out scaled physical models of substrate faulting and effects on covering shallow deposits, comprising strike-slip, reverse and normal fault kinematics; other apparatuses are dedicated to simulate magma uprising along conduits of different geometry and its effects on surface deformations and pyroclastic cone growth. Numerical modelling is based on FLAC, Coulomb, and Comsol Multiphysics softwares, focusing on modelling the processes of magma intrusion and propagation in the shallow crust, and their relations with surface deformations under different stress settings.
- 2015-today **Chairperson - Committee of National Representatives of International Lithosphere Program**  
 With this role I coordinate all the representatives of the International Lithosphere Program (ILP) of the various involved countries. Presently, there are 22 countries of all over the world. The target areas for ILP focus are aspects of the crust and deeper parts of the lithosphere and the interaction of crust/mantle processes with surface processes and neotectonic activities, especially on the continents and their margins in which both geophysics and geology are involved. The ILP acts under the aegis of IUGS and IUGG. For more info on ILP see: <https://ilp.nju.edu.cn/main.htm>
- 2005-2008 **Vice-Director of Milan Bicocca University Dating Center**

I was the cofounder of this dating Center, which I coordinated together with the Director, with a focus on researches and improvement of technological methodologies for dating especially geological deposits. Special attention was dedicated to techniques like Thermoluminescence and Optically-Stimulated Luminescence useful for dating young deposits.

2005-2007

**Member of National Committee on Research and Monitoring Active Volcanoes**

I was a member of the committee that coordinated all the research projects and the monitoring of the active volcanoes in Italy, under the agreement between the Istituto Nazionale di Geofisica e Vulcanologia and the Dipartimento della Protezione Civile. The budget was of Euro 4,500,000.

Awards

- **2024 "Mikheil Nodia Prize"** of the Georgian Academy of Sciences for the scientific contributions on the "Security of the Enguri Hydroelectric Power Plant in Georgia from Geohazards".
- **2007 Elsevier Award** for the "2003-2007 most cited paper on Tectonophysics";
- **2000 "Alessandro Volta Award"** for Scientific Researches in European and extra-European mountain belts;
- **1991 "Edward A. Flinn Award"** of the International Lithosphere Program – International Union of Geodesy and Geophysics – International Union of Geological Sciences;
- **1988 "Mario Oxilia 1987-1988 Award** on the Geology and Structure of the Alps", of the Geological Society of Italy.

**MAIN NATIONAL AND INTERNATIONAL GRANTS**  
(as Principal Investigator)

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- 2022-2025 PI of "Prevention of impending geo-related threats to Azerbaijan's energy independence", international project funded by NATO, Budget Euro 250,000.
  - 2022-2025 MIUR-PRIN project "Fault segmentation and seismotectonics of active thrust systems: the Northern Apennines and Southern Alps laboratories for new Seismic Hazard Assessments in northern Italy (NASA4SHA)". Euro 100,000.
  - 2021-2025 PI of International Lithosphere Program, Task Force II "deformation and magmatic processes from the lithosphere to the surface: integrated multidisciplinary approaches", Budget Euro 25,000.
  - 2019-2022 Coordinator of Research Unit of NEANIAS project "Novel EOSC Services for Emerging Atmosphere, Underwater & Space Challenges", funded by European Union Call H2020-INFRAEOSC-2018-2020 Budget Euro 4,500,000.
  - 2017-2020 Coordinator of Research Unit of ErasmusPlus KA2 n. 2017-1-UK01-KA203-036719, "Bringing the 3-D World into the Classroom: a New Approach to Teaching, Learning and Communicating the Science of Geo-hazards in Terrestrial and Marine Environments", funded by EU, Budget Euro 300,000.
  - 2017-2019 PI of MIUR Law 113/91 D.D. 1524/08-07-2015 T4, "Agreement University of Milan Bicocca - Consortium Cometa for the evaluation of leading-edge interactive technologies for improving teaching and popularization of science", Budget Euro 200,000.
  - 2015-2019 PI of International Lithosphere Program, Task Force II "Structural and rheological constraints on magma migration, accumulation and eruption through the lithosphere", Budget Euro 25,000.
  - 2015-2018 PI of NATO - Science for Peace, n. G4934, "Risks to the Enguri hydropower infrastructure in Georgia and their security implications", Budget Euro 350,000.
  - 2014-2015 Coordinator of Research Unit of MIUR - National Program of Antarctic Researches: "Origin and dispersal of volcanic ash in the Austral Hemisphere: a database for volcanology, chronostratigraphy and paleoclimate of the Earth", Budget Euro 40,000.
  - 2013-2014 PI of European Union Intensive Program Erasmus: "Integrating field classical and new methodologies for geological hazard assessment and communication" Budget Euro 60,000.
  - 2010-2014 PI of International Lithosphere Program, Task Force II "Volcanoes and society: environment, health and risk" Budget Euro 25,000.
  - 2009-2014 Co-PI of Transatlantic project European Union-USA Atlantis "International collaboration and teaching in Volcanology and Engineering geology", Budget Euro 500,000.
  - 2008-2012 Co-PI of NATO - Science for Peace "Geo-environmental security of the Toktogul hydroelectric power station region, central Asia", Budget Euro 300,000.
  - 2009 PI of MIUR, "Earth Sciences for renewable energetic resources: Italy-Argentina" Budget Euro 60,000.
  - 2005-2007 PI of project funded by Civil Protection Agency - National Institute of Geophysics and Volcanology "Research and monitoring of Stromboli and Panarea volcanoes" Budget Euro 50,000.
  - 2005-2005 PI of MIUR-PRIN project "Influence of regional seismotectonic activity on the structural-geological evolution and edifice instability of a volcano: the example of Cotopaxi, Ecuador" Budget Euro 35,000.
  - 2003-2005 PI of NATO project: "A multidisciplinary approach to recent geologic catastrophes at subduction

- zones" Budget Euro 15,000.
- 2003-2005 PI of MIUR-FIRB "Relationships between large volcanic collapses and evolution of volcanic edifices, consequences for the evaluation of geological hazards and for the hydrogeologic, geothermic and mineral exploration" Budget Euro 200,000.
- 2001-2005 PI of International Geological Correlation Program: "Effects of basement structural and stratigraphic heritages on volcano behaviour and human activities" Budget Euro 20,000.
- 2000-2003 PI of National Group for Volcanology (GNV) project: "Risk of collapse at Stromboli volcano" Budget Euro 50,000.
- 1998-2000 PI of National Project CARG-S.G.N.-C.N.R.: "Prototype Geological Map of Stromboli", Budget Euro 40,000.

#### TEACHING ACTIVITY

- 2017-today Teaching the courses of "Structural geology", "Neotectonics and volcano-tectonics", "Field mapping of volcanic terrains". Since the academic year 2022-23, teaching the course "Volcano geology".
- 2000-2016 Teaching the courses of "Structural geology", "Photogeology and remote-sensing", "Field mapping".
- 2000-today Tutor of about one hundred Bsc and Msc thesis, and a total of 9 PhD in earth Sciences. Co-tutor of other 4 international PhD in collaboration with European and extra-European universities.

#### ORGANIZATION OF SCIENTIFIC MEETINGS

- 2009 President of NATO-ILP joint international meeting, Clermont Ferrand, France.
- 2007 President of the International Meeting on Volcanism and Tectonics, III Cuban Earth Science Congress, March 2007, La Habana, Cuba.
- 2002 President of the International Symposium on Basement-Volcano Interactions and Human activities, October 2002, Santiago del Chile, Chile.

#### FURTHER INFORMATION

- Deposited Patent Deposited patent n. 102020000018367 of 2022 entitled "Platform and Methods for Immersive Virtual Reality" under the inventors A. Tibaldi, F. Bonali, U. Becciani, F. Vitello.
- Consultant for Civil Protection for Stromboli In 2003-2005 I was consultant of the Italian Department of Civil Protection for the emergency at the volcano Stromboli.
- Working table on Vulcano hazard In 2016 I was a member of the working table of the Civil Protection – National Institute of Geophysics and Volcanology for the assessment of the volcanic hazards at the island of Vulcano.
- Consultant on volcanic hazard Of Reventador volcano (Ecuador) for World Bank, of Los Azufres caldera (Mexico) for Comision Federal de Electricidad, of Stromboli and Vulcano volcanoes for Italian Civil Protection in collaboration with INGV, of Peeble Cook Inlet pipeline (Alaska) for RINA Consulting.
- Editor of international journals
- - Since 2019 Associate Editor of Bulletin of Volcanology;
  - - 2015 – 2023 Associate Editor of Frontier in Earth Sciences, Structural Geology and Tectonics;
  - - Since 2015 Review Editor of Frontier in Earth Sciences, Volcanology;
  - - 2012 and 2017 Guest Editor (with Sierd Cloetingh) of Journal Global Planetary Change, Special issue;
  - - 2006 Guest Editor (together with A.F.M. Lagmay) of Journal of Volcanology and Geothermal Research, Special issue: "Interaction Between Volcanoes and Their Basement".
- Evaluator of research results
- Reviewer of research projects for: MIUR, US National Science Foundation, Czech Science Foundation, Israel Science Foundation, CNR, GNV, FIRB, ERC, Kazakhstan Government, Swiss National Science Foundation, Foundation for Polish Science, Romanian National Council for Scientific Research, National Research Foundation of South Africa, UNESCO.
  - Reviewer of the following journals: Geology, JGR-Solid Earth, Geophys. Res. Lett., Frontiers, Earth Planet. Sci. Lett., Natural Hazard, Bull. Volcanol., Tectonophysics, J. Volcanol. Geotherm. Res., Journal of Maps, J. of Structural Geology.