

Diego Perugini – Academic Curriculum

ACADEMIC CAREER

1997 – Degree in Geological Sciences, University of Perugia.

1998–2002 – PhD student at the Department of Earth Sciences, University of Perugia. PhD awarded on 14 January 2002 with a thesis entitled “Chaos, fractals and non-linear dynamics in magma interaction processes.”

2001–2008 – Postdoctoral Research Fellow at the Department of Earth Sciences, University of Perugia, with a project entitled “Relationships between magma evolution processes, magma ascent, and eruptive mechanisms.”

2008–2015 – Researcher (Scientific-Disciplinary Sector GEO/07) at the Department of Earth Sciences, University of Perugia.

February 2010 – Visiting Professor at the Département des Sciences de la Terre, Université de Paris-Sud Orsay (France), where he delivered a series of lectures and seminars on the genesis and differentiation of magmas.

2010–2012 (three years, four months per year) – Humboldt Fellow at the Department of Earth and Environmental Sciences, Ludwig-Maximilians-Universität (LMU), Germany.

2015–2023 – Associate Professor (SSD GEO/07) at the Department of Physics and Geology, University of Perugia.

Since March 2022 – Full Professor (SSD GEO/07) at the Department of Physics and Geology, University of Perugia.

AWARDS AND FELLOWSHIPS

2002 – Doctoral Thesis Award, granted by the Italian Society of Mineralogy and Petrology (SIMP).

2003 – Angelo Bianchi Award, granted by the Italian Society of Mineralogy and Petrology (SIMP).

2010–2012 (four months per year) – Humboldt Fellowship, awarded by the Alexander von Humboldt Foundation (Germany) at the Department of Earth and Environmental Sciences, Ludwig-Maximilians-Universität (LMU, Germany), for research on the role of magma mixing in triggering volcanic eruptions and on the effect of textural heterogeneities in rocks on fragmentation processes during explosive eruptions.

2020 – International “Luigi Tartufari” Prize for Geosciences, awarded by the Accademia Nazionale dei Lincei.

SELECTED RESEARCH EXPEDITIONS AND INTERNATIONAL FIELD TRIP ORGANISATION

2002 – Leader of the international field excursion Eurogranites 2002 (15–21 September) focused on the intrusive and effusive rocks of the Tuscan Magmatic Province.

2003–2004 – Member of the XIX Italian Antarctic Expedition for the study of magma interaction processes in the Northern Victoria Land and the Dry Valleys regions.

LABORATORY ORGANISATION AND SUPERVISION

Organisation, supervision, and management of the Laser Ablation–Inductively Coupled Plasma–Mass Spectrometry (LA-ICP-MS) laboratory for geochemical analysis of solid materials at the Department of Physics and Geology, University of Perugia, where he developed microanalytical protocols for geological materials.

Organisation, supervision, and management of the high-resolution image analysis laboratory for the study of natural rocks and experimental samples.

Organisation, supervision, and management of the high-temperature laboratory for the study and simulation of magma behaviour aimed at quantifying the timescales of volcanic eruptions (<http://pvrg.unipg.it>).

MAIN RESEARCH GRANTS AWARDED

2022 – Scientific Coordinator (Principal Investigator) of the three-year PRIN202037YPCZ project “Dynamics and timescales of volcanic plumbing systems: a multidisciplinary approach to a multifaceted problem”, funded by MIUR.

2018 – Co-Principal Investigator of the ASI–UNIPG Agreement No. 2019-2-HH.0 “Implementation of research activities and development of innovative expertise”, funded by the Italian Space Agency (ASI) and co-funded by the University of Perugia.

2013 – Principal Investigator of the ERC-CoG-2013 – IDEAS Consolidator Grant (CHRONOS) “A geochemical clock to measure timescales of volcanic eruptions”, funded by the ERC.

2013 – Scientist in Charge for the University of Perugia in the FP7-PEOPLE-2013-ITN (VERTIGO) “Volcanic ash: field, experimental and numerical investigations of processes during its lifecycle”, funded by the ERC.

2012 – Coordinator of the Perugia Research Unit of the three-year PRIN2010TT22SC_004 project “Genesis and differentiation of magmas in relation to geodynamic environment and to the petrological and geochemical characteristics of their sources: implications for the evolution of the Africa–Europe convergent system”, funded by MIUR.

2011 – Researcher in the VUELCO (FP7-ENV-2011) project “Volcanic unrest in Europe and Latin America: phenomenology, eruption precursors, hazard forecast, and risk mitigation” (P.I.: J. Gottsmann, University of Bristol, UK).

2009 – Researcher in the DFG DI 431/31-1 project “Magma Mixing in the Snake River Plain – Yellowstone, USA” (P.I.: D.B. Dingwell, LMU, Germany).

2007 – Coordinator of the Perugia Research Unit of the PRIN2007278A22 project “Development of compositional heterogeneities during the generation, migration, and emplacement of crustal anatectic melts”, funded by MIUR.

SELECTED INVITED LECTURES

2021 – Distinguished Lecturer: “A geochemical clock to measure timescales of volcanic eruptions”, organised by the Geological Society of Italy and the Italian Society of Mineralogy and Petrology.

2017 – Seminar at INGV, Rome: “A geochemical clock to measure timescales of volcanic eruptions”.

2017 – Distinguished Lecturer: “A geochemical clock to measure timescales of volcanic eruptions”, held with Carlo Doglioni at the Universities of Bologna, Modena, Ferrara, Padua, Milan, Genoa, Camerino, and Siena.

2016 – Keynote Lecture, Goldschmidt 2016, Yokohama: “Concentration Variance Decay during Magma Mixing: A Volcanic Chronometer”.

2013 – Keynote Lecture, Goldschmidt 2013, Florence: “Concentration Variance Decay during Magma Mixing: A Volcanic Chronometer to Measure Magma Ascent Velocity during Explosive Eruptions”.

2011 – Keynote Lecture, Goldschmidt 2011, Prague: “Magma mixing as a petrological clock to measure the timescale of volcanic eruptions: experiments and numerical models”.

2009 – Invited Lecture, International School of Volcanology, Nisyros: “The mixing of magmas from magma chamber to eruption explored by chaos theory and fractal geometry”.

2008 – Keynote Lecture, 1st SIMP-AIC Joint Meeting, Sestri Levante: “Time-scales of volcanic processes: constraints from rock textures, trace elements diffusivity and modelling”.

2008 – Plenary Lecture, 2nd Central-European Mineralogical Conference, Poland: “Replenishment of felsic magma chambers by continuous inputs of mafic magmas: field evidence and experiments”.

2007 – Invited Talk, AGU Fall Meeting, San Francisco: “Kinematic and petrologic significance of magma mixing structures in igneous rocks: application of fractal geometry and chaos theory.”

TEACHING AND SERVICE TO THE ACADEMIC COMMUNITY

Since November 2025 – Rector’s Delegate for Research, Scientific Development and Human Growth, University of Perugia.

2022–2025 – Director of the Department of Physics and Geology, University of Perugia.

2022–2025 – Chair of the Research and Third Mission Committee of the Academic Senate, University of Perugia.

2019–2022 – Deputy Director of the Department of Physics and Geology, University of Perugia.

2017–2022 – Deputy Coordinator of the PhD School in “Science and Technology for Physics and Geology”, University of Perugia.

2013 – Chair of the Scientific Committee and organiser of the VI International Conference on Fractals and Dynamic Systems in Geoscience, Perugia.

Courses taught: Petrography, Petrology, Petrogenesis, Volcanology, Archaeometry of Stone Materials, Interdisciplinary Field Excursions I, Magmatology and Geodynamics, Analytical Methods in Mineralogy and Petrography, Lithology I, and Earth System Science.

Roles: examination board member; PhD selection and thesis committee member; supervisor of BSc, MSc, and PhD theses, and postdoctoral fellows.

2010 – Designer of multimedia contents (over 100 interactive animations on Petrography and Mineralogy) for the “Touch Screen E-Learning Environment” of the Natural History Museum of Florence.

Other roles: representative of PhD students (1998–2002) and researchers (2007–2010) at the University of Perugia; member of the SIMP Executive Board (2012–2014); secretary of the National Petrology Group (2005–2008).

2003 – Co-author (with Angelo Peccerillo) of “Introduzione alla Petrografia Ottica”, Morlacchi Editore, widely adopted as a textbook in Italian universities.

EDITORIAL ACTIVITY

2021 – Author of the monograph “The Mixing of Magmas: Field Evidence, Numerical Models, Experiments”, Springer Nature, ISBN 978-3-030-81810-4.

2017–2019 – Member of the Advisory Board, Italian Journal of Geosciences.

2015–2018 – Member of the Editorial Board, Scientific Reports.

2013–2014 – Guest Editor, “Fractal and Dynamic Systems in Geoscience”, Pure and Applied Geophysics.

2004 – Guest Editor, “Interaction Between Mafic and Felsic Melts in Orogenic Suites”, Lithos 78.

2003 – Guest Editor, “Miocene to Recent Plutonism and Volcanism in the Tuscan Magmatic Province”, Periodico di Mineralogia 72.

2002 – Guest Editor, “Non-linear and Chaotic Dynamics in Igneous Petrology”, Lithos 65.

INTERNATIONAL COLLABORATIONS

Collaborations with colleagues from institutions and research centres in: the United Kingdom (Universities of Oxford and Bristol); France (Université de Paris-Sud, Université de Pau); Germany (Ludwig-Maximilians-Universität, Munich; DLR, Berlin); Greece (University of Thessaloniki); Ireland (National University of Ireland, Galway); Poland (University of Warsaw); Portugal (University of Coimbra); Spain (Instituto de Ciencias de la Tierra “Jaume Almera”); and the United States (Washington State University).

BRIEF DESCRIPTION OF RESEARCH ACTIVITY

Research focuses on the modelling of magmatic systems and the development of new petrological tools based on Chaos Theory and Fractal Geometry, to provide conceptual models for quantifying magma differentiation processes, their links with geodynamics, and their role in triggering explosive volcanic eruptions.

Work also addresses fragmentation processes during eruptions, integrating fieldwork, experiments, and high-resolution models.

Recent research develops experimental petrological methods to quantify volcanic eruption timescales through compositional variability in magma-mixed volcanic rocks.

Other studies explore magma–rock interaction and the role of lithic fragments in heterogeneous vesiculation during magma ascent.

A new line of research integrates high-temperature experiments and infrared thermal analysis to interpret the composition of extraterrestrial lavas and planetary differentiation processes.

Author/co-author of over 300 abstracts and more than 160 scientific papers (over 95% in international journals); more than 4,000 citations and an h-index of 40 (Scopus, November 2025).

PUBLICATION LIST

1. Perugini D., Poli G. (1998) - Fractals and their applicability in the study of mafic microgranular enclaves, Proceedings of the Fourth Annual Conference of the International Association for Mathematical Geology, A. Buccianti, G. Nardi and R. Potenza (Eds.), pp. 608-611.
2. Perugini D., Poli G., Prosperini N. (1999) - Magma Mixing and Dynamical Systems: a New Approach for the Study of Magmatic Interaction Phenomena, Proceedings of the Fifth Annual Conference of the International Association for Mathematical Geology, S. J. Lippard, A. Naess and R. Sinding-Larsen (Eds.), pp. 239-244.

3. Prosperini N., Perugini D., Poli G. (1999) - Magma Mixing, Thin-Plate Spline and the Dynamics of Emplacement of Pantelleria Island Lava Domes (Southern Italy), Proceedings of the fourth annual conference of the International Association for Mathematical Geology, S. J. Lippard, A. Naess and R. Sinding-Larsen (Eds.), pp. 81-86.
4. Perugini D., Poli G. (1999) - Morphometry of Magmatic Enclaves in Lava Domes: Implications for Magma Vesiculation, Atti del Workshop di Informatica Applicata alle Scienze della Terra, Nardi G., Vigliotti M. (Eds.), Edizioni De Fede, pp. 115-118.
5. Prosperini N., Perugini D., Poli G., Manetti P. (2000) - Integrated Studies on Spatial Distribution, Petrography and Geochemistry of Magmatic Interaction Structures Occurring in the Khaggiar Lava Dome (Pantelleria, Italy), *Acta Vulcanologica*, 12, 37-47.
6. Perugini D., Poli G. (2000) - Chaotic Dynamics and Fractals in Magmatic Interaction Processes: a Different Approach for the Interpretation of Mafic Microgranular Enclaves, *Earth and Planetary Science Letters*, 175, 93-103.
7. Prosperini N., Perugini D., Poli G., Manetti P. (2000) - Magmatic Enclaves Distribution within the Khaggiar Lava Dome (Pantelleria, Italy): Implications for Magma Chamber Dynamics and Eruption, *Acta Vulcanologica*, 12, (1-2), 37-47.
8. Petrelli M., Perugini D., Moroni B., Poli G. (2001) - A Simple System Based on Fuzzy Logic and Artificial Neural Networks to Determine Travertine Provenance from Ancient Buildings, Proceedings of the Workshop on Artificial Intelligence for Cultural Heritage and Digital Libraries, Bordoni L., Semeraro G. (Eds.), Bari, 19-25.
9. Perugini D. (2002) - MorphoUt 1.0: Utilities for Closed Shape Morphometry, *Computers, Geosciences*, 28 (1), 73-79.
10. Perugini D., Moroni B., Poli G. (2002) - Characterization of Marble Textures by Image and Fractal Analysis. Proceedings of ASMOSIA, 241-246.
11. Perugini D., Poli G., Prosperini N. (2002) - Morphometry of Magmatic Enclaves: a Tool for understanding Magma Vesiculation and Ascent, *Lithos*, 61, (3-4), 225-235.
12. Moroni B., Perugini D., Poli G., Turi B. (2002) - Characterization of Marbles by Textural Analyses and Stable Isotope Geochemistry: Examples from the "Fontana Maggiore" of Perugia (Italy), Atti del II Congresso Nazionale di Archeometria, Patron Editore, Bologna, 437-446.
13. Perugini D., Poli G., Gatta G. (2002) - Analysis and Simulation of Magma Mixing Processes in 3D, *Lithos*, 65, 3-4, 313-330.
14. Poli G., Perugini D. (2002) - Strange Attractors in Magmas: Evidence from Lava Flows, *Lithos*, 65, 3-4, 287-297.

15. Poli G., Perugini D. (2002) - Preface to the Special Issue 'Non-Linear and Chaotic Dynamics in Igneous Petrology', *Lithos*, 65, (3-4), 7-8.
16. Poli G., Perugini D., Rocchi S., Dini A. (2002) - Miocene to Recent Plutonism and Volcanism in the Tuscan Magmatic Province (Central Italy), *Eurogranites 2002 Field Guide*, 361 pp.
17. Petrelli M., Perugini D., Moroni B., Poli G. (2003) - Determination of Travertine Provenance from Ancient Buildings Using Self-Organizing Maps and Fuzzy Logic, *Applied Artificial Intelligence*, 17, 8-9, 885-900.
18. Perugini D., Poli G., Christofides G., Eleftheriadis G. (2003) - Magma Mixing in the Sithonia Plutonic Complex, Greece: Evidence from Mafic Microgranular Enclaves, *Mineralogy and Petrology*, 78, 3-4, 173-200.
19. Perugini D., Busà T., Poli G., Nazzareni S. (2003) - The Role of Chaotic Dynamics and Flow Fields in the Development of Disequilibrium Textures in Volcanic Rocks, *Journal of Petrology*, 44, 4, 733-756.
20. Perugini D., Poli G., Mazzuoli R. (2003) - Chaotic Advection, Fractals and Diffusion During Mixing of Magmas: Evidence from Lava Flows, *Journal of Volcanology and Geothermal Research*, 124, 255-279.
21. Perugini D., Poli G. (2003) - Chaotic Mixing of Magmas in the Tuscan Magmatic Province. In: G. Poli, D. Perugini, S. Rocchi, A. Dini (Eds.), *Miocene to Recent Plutonism and Volcanism in the Tuscan Magmatic Province (Central Italy)*, *Periodico di Mineralogia*, LXXII (2), 53-61.
22. Poli G., Perugini D. (2003) - San Vincenzo Volcanites. In: G. Poli, D. Perugini, S. Rocchi, A. Dini (Eds.), *Miocene to Recent Plutonism and Volcanism in the Tuscan Magmatic Province (Central Italy)*, *Periodico di Mineralogia*, LXXII (2), 141-155.
23. Poli G., Perugini D. (2003) - Roccastrada Volcanites. In: G. Poli, D. Perugini, S. Rocchi, A. Dini (Eds.), *Miocene to Recent Plutonism and Volcanism in the Tuscan Magmatic Province (Central Italy)*, *Periodico di Mineralogia*, LXXII (2), 157-168.
24. Poli G., Perugini D. (2003) - The Island of Capraia. In: G. Poli, D. Perugini, S. Rocchi, A. Dini (Eds.), *Miocene to Recent Plutonism and Volcanism in the Tuscan Magmatic Province (Central Italy)*, *Periodico di Mineralogia*, LXXII (2), 195-201.
25. Perugini D., Poli G. (2003) - The Monte Cimino Volcano. In: G. Poli, D. Perugini, S. Rocchi, A. Dini (Eds.), *Miocene to Recent Plutonism and Volcanism in the Tuscan Magmatic Province (Central Italy)*, *Periodico di Mineralogia*, LXXII (2), 203-210.

26. Poli G., Perugini D. (2003) - Tolfa, Cerveteri and Manziana Volcanic Area. In: G. Poli, D. Perugini, S. Rocchi, A. Dini (Eds.), Miocene to Recent Plutonism and Volcanism in the Tuscan Magmatic Province (Central Italy), *Periodico di Mineralogia*, LXXII (2), 211-223.
27. Peccerillo A., Perugini D. (2003) - Introduzione alla Petrografia Ottica. Morlacchi Editore, Perugia, 220 pp, (LIBRO + CDROM Interattivo).
28. Perugini D. (2003) - The Ordovician Gneisses of North-Eastern Sardinia (Italy): Hypotheses for the Petrological Evolution of their Protoliths, *Periodico di Mineralogia*, LXXII (3), 4967.
29. Perugini D., Poli G., Christofides G., Eleftheriadis G., Koroneos, A., Soldatos, T. (2004) - Mantle Derived and Crustal Melts Dichotomy in Northern Greece: Spatiotemporal and Geodynamic Implications, *Geological Journal*, 39 (1), 63-80.
30. Perugini D., Poli G., Bonin B. (2004) - Preface to the Special Issue 'Interaction Between Mafic and Felsic Magmas in Orogenic Suites', *Lithos*, 78, (1-2), ix-xii.
31. Perugini D., Poli G. (2004) - Analysis and Numerical Simulation of Chaotic Advection and Chemical Diffusion During Magma Mixing: Petrological Implications, *Lithos*, 78(1-2), 4366.
32. Perugini D., Poli G. (2004) - Determination of the Degree of Compositional Disorder in Magmatic Enclaves Using SEM, X-ray Element, Maps, *European Journal of Mineralogy*, 16, 431- 442.
33. Perugini D., Ventura G., Petrelli M., Poli G. (2004) - Kinematic Significance of Morphological Structures Generated by Mixing of Magmas: a Case Study from Salina Island (Southern Italy), *Earth and Planetary Science Letters*, 222, 1051-1066.
34. Christofides G., Perugini D., Eleftheriadis G., Del Moro A., Koroneos A., Soldatos T., Poli G. (2004) - Geochemical Modelling of the Interaction Between Mantle Derived and Crustal Melts for the Genesis and Evolution of the Sithonia Plutonic Complex (Chalkidiki, Northern Greece), Proc. 5th International Symposium on Eastern Mediterranean Geology, Thessaloniki, Greece, 1106- 1109.
35. Perugini D., Poli G., Christofides G., Eleftheriadis G., Koroneos A., Soldatos T. (2004) - Coeval Calc-Alkaline, Potassic, and Ultra-Potassic Mafic Melts from Northern Greece: Implications for the Genesis of a "Leopard-Skin" Mantle Source, Proc. 5th International Symposium on Eastern Mediterranean Geology, Thessaloniki, Greece, 1224-1227.
36. Perugini D., Poli G. (2004) - Dynamic and Petrological Significance of Magma Mixing Structures in Lava Flows from Lesbos (North-Eastern Greece), Proc. 5th International Symposium on Eastern Mediterranean Geology, Thessaloniki, Greece, 1220-1223.

37. Perugini D., Poli G., Moroni B., Turi B. (2004) - A Novel Approach Integrating Image Analysis, Fractal Geometry and Stable Isotope Geochemistry for Provenance Determination of Marbles, Proc. 5th International Symposium on Eastern Mediterranean Geology, Thessaloniki, Greece, 776-779.
38. Petrelli M., Perugini D., Moroni B., Poli G. (2004) - Travertine, a Building Stone Extensively Employed in Umbria From Etruscan to Renaissance Age: Provenance Determination Using Artificial Intelligence Technique, *Periodico di Mineralogia*, LXXIII, 151-169.
39. Poli G., Perugini D., Rocchi S., Dini A. (2004) - A Crustal Section Through Intrusive and Effusive Volcanic Complexes of the Tuscan Magmatic Province, IGC2004 Field Trip Guide Book - P70, 28 pp.
40. Perugini D., Poli G. (2005) - Viscous Fingering During Replenishment of Felsic Magma Chambers by Continuous Inputs of Mafic Magmas: Field Evidence and Fluid-Mechanics Experiments, *Geology*, 33 (1), 5-8.
41. Perugini D., Poli G., Rocchi S. (2005) - Development of Viscous Fingering Between Mafic and Felsic Magmas: Evidence from the Terra Nova Intrusive Complex (Antarctica), *Mineralogy and Petrology*, 83, 151-166.
42. Petrelli M., Poli G., Perugini D., Peccerillo A. (2005) - Petrograph: a New Software to Visualize, Model, and Present Geochemical Data in Igneous Petrology, *Geochemistry, Geophysics, and Geosystems*, 6 (7), Q07011, DOI 10.1029/2005GC000932.
43. Perugini D., Poli G. (2005) - Strange Attractors in Plagioclase Oscillatory Zoning: Petrological Implications, *Contributions to Mineralogy and Petrology*, 149 (4), 482 - 497.
44. Petrelli M., Perugini D., Poli G. (2006) - Time Scales of Hybridization of Magmatic Enclaves in Regular and Chaotic Flow Fields: Petrologic and Volcanologic Implications, *Bulletin of Volcanology*, 68 (3), 285-293.
45. Perugini D., Petrelli M., Poli G. (2006) - Petrological and Dynamical Significance of Plagioclase Zoning in Vegetation Island Felsic Rocks (Terra Nova Intrusive Complex, Antarctica), *Terra Antarctica Reports*, 12, 65-72.
46. Perugini D., Petrelli M., Poli G. (2006) - Diffusive Fractionation of Trace Elements by Chaotic Mixing of Magmas, *Earth and Planetary Science Letters*, 243 (3-4), 669-680.
47. Perugini D., Petrelli M., Poli G. (2006) - Analysis of Concentration Patterns in Volcanic Rocks: Insights into Dynamics of Highly Explosive Volcanic Eruptions, *Physica A: Statistical Mechanics and its Applications*, 370 (2), 741-746.

48. Perugini D., Little M., Poli G. (2006) - Time Series to Petrogenesis: Analysis of Oscillatory Zoning Patterns in Plagioclase Crystals from Lava Flows, *Periodico di Mineralogia*, LXXVI (2), 325- 336.
49. Kueppers U., Perugini D., Dingwell D. B. (2006) - "Explosive Energy" During Volcanic Eruptions from Fractal Analysis of Pyroclasts, *Earth and Planetary Science Letters*, 248 (34) 800- 807.
50. Christofides G., Perugini D., Koroneos A., Soldatos T., Poli G., Eleftheriadis G., Del Moro A., Neiva A. M. (2007) - Interplay Between Geochemistry and Magma Dynamics During Magma Interaction: an Example from the Sithonia Plutonic Complex (NE Greece), *Lithos*, 95 (3-4), 243- 266.
51. Valentini L., Perugini D., Poli G. (2007) - The 'Small-World' Nature of Fracture/Conduit Networks: Possible Implications for Disequilibrium Transport of Magmas Beneath MidOcean Ridges, *Journal of Volcanology and Geothermal Research*, 159 (4), 355-365.
52. Perugini D., Petrelli M., Poli G. (2007) - Influence of Landscape Morphology and Vegetation Cover on The Sampling of Mixed Plutonic Bodies, *Mineralogy and Petrology*, 90 (1-2), 117.
53. Comodi P., Nazzareni S., Perugini D., Bergamini M. (2006) - Technology and Provenance of Roman Ceramics from Scoppieto, Italy: a Mineralogical and Petrological Study, *Periodico di Mineralogia*, LXXVI (2), 95-112.
54. Perugini D., Petrelli M., Poli G. (2007) - A Virtual Voyage through 3D Structures Generated by Chaotic Mixing of Magmas and Numerical Simulations: a New Approach for Understanding Spatial and Temporal Complexity of Magma Dynamics, *Visual Geosciences*, 10.1007/s10069-006-0004-x.
55. Valentini L., Perugini D., Poli G. (2007) - The "Small-World" Topology of Rock Fracture Networks, *Physica A: Statistical Mechanics and its Applications*, 377, 323-328.
56. Perugini D., Poli G. (2007) - Tourmaline Nodules from Capo Bianco Aplite (Elba Island, Italy): an Example of Diffusion Limited Aggregation Growth in a Magmatic System, *Contributions to Mineralogy and Petrology*, 153 (5), 493-508.
57. Petrelli M., Perugini D., Poli G., Peccerillo A. (2007) - Graphite Electrode Lithium Tetraborate Fusion for Trace Element Determination in Bulk Geological Samples by Laser Ablation ICP-MS, *Microchimica Acta*, 158 (3-4), 275-282.
58. Prosperini N., Perugini D. (2007) - Application of a Cellular Automata Model to the Study of Soil Particle Size Distributions, *Physica A: Statistical Mechanics and its Applications*, 383, 595- 602.

59. Perugini D., Valentini L., Poli G. (2007) - Insights into Magma Chamber Processes from the Analysis of Size Distribution of Enclaves in Lava Flows: a Case Study from Vulcano Island (Southern Italy), *Journal of Volcanology and Geothermal Research*, 166, 193-203.
60. Alagna K.E., Petrelli M., Perugini D., Poli G. (2008) - Micro-Analytical Zircon and Monazite U-Pb Isotope Dating by Laser Ablation-Inductively Coupled Plasma-Quadrupole Mass Spectrometry, *Geostandards and Geoanalytical Research*, 32 (1), 103-120.
61. Petrelli M., Perugini D., Alagna E., Poli G., Peccerillo A. (2008) - Spatially Resolved and Bulk Trace Element Analysis by Laser Ablation - Inductively Coupled Plasma - Mass Spectrometry (LA-ICP-MS), *Periodico di Mineralogia*, 77 (1), 3-21.
62. Prosperini N., Perugini D. (2008) - Particle Size Distributions of Some Soils from the Umbria Region (Italy): Fractal Analysis and Numerical Modelling, *Geoderma*, 145 (3-4), 185-195.
63. De Campos C.P., Dingwell D.B., Perugini D., Civetta L., Fehr T.K. (2008) - Heterogeneities in Magma Chambers: insights from the behavior of major and minor elements during mixing experiments with natural alkaline melts, *Chemical Geology*, 256, 131-145.
64. Perugini D., De Campos C., Dingwell D.B., Petrelli M. and Poli, G. (2008) - Trace Element Mobility During Magma Mixing: Preliminary Experimental Results, *Chemical Geology*, 256, 146- 157.
65. Perugini D., Petrelli M., Poli G., De Campos C., Dingwell D.B. (2010) - Time-Scales of Recent Phlegrean Fields Eruptions Inferred from the Application of a 'Diffusive Fractionation' Model of Trace Elements, *Bulletin of Volcanology*, 72, (4), 431-447.
66. Poli G., Christofides G., Koroneos A., Soldatos T., Perugini D., Langone A. (2010) - Early Triassic Granitic Magmatism - Arnea and Kerkini Granitic Complexes - in the Vertiskos Unit (Serbo-Macedonian Massif, Northeastern Greece) and its Significance in the Geodynamic Evolution of the Area, *Acta Vulcanologica*, 20, (1-2), 47-70.
67. De Campos C.P., Perugini D., Ertel-Ingrisch W., Dingwell D.B., Poli G. (2011) - Enhancement of Magma Mixing Efficiency by Chaotic Dynamics: an Experimental Study, *Contributions to Mineralogy and Petrology*, 161, 863-881.
68. Caricchi L., Pommier A., Pistone M., Castro J., Burgisser A., Perugini D. (2011) - Strain- Induced Magma Degassing: Insights from Simple Shear Experiments on Bubble Bearing Melts, *Bulletin of Volcanology*, 73, 1245-1257.
69. Perugini D., Spaziali A., Caricchi L., Kueppers U. (2011) - Application of Fractal Fragmentation Theory to Natural Pyroclastic Deposits: Insights into Volcanic Explosivity of the Valentano Scoria Cone (Italy), *Journal of Volcanology and Geothermal Research*, 202, 200-210.

70. Petrelli M., Perugini D., Poli G. (2011) - Transition to Chaos and Implications for Time- Scales of Magma Hybridization During Mixing Processes in Magma Chambers, *Lithos*, 125, 211- 220.
71. Perugini D., Poli G. (2011) - FRONTIERS - Intrusion of Mafic magmas Into Felsic Magma Chambers: New Insights from Natural Outcrops and Fluid-Mechanics Experiments, *Italian Journal of Geosciences*, 130, 3-15.
72. Kendrick J.E., Lavallée Y., Ferka A., Perugini D., Leonhardt R., Dingwell D.B. (2012) - Extreme frictional processes in the volcanic conduit of Mount St. Helens (USA) during the 2004– 2008 eruption, *Journal of Structural Geology*, 38, 61-76.
73. Perugini D., Kueppers U. (2012) - Fractal Analysis of Experimentally Generated Pyroclasts: A Tool for Volcanic Hazard Assessment, *Acta Geophysica*, 60, 682-698.
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