MATTIA PISTONE – CURRICULUM VITAE (October 2026)

Present contact



5th January 1984 (Chieti, Italy)
Italian Citizen / EU Citizen / US Permanent Resident (Green Card Holder)
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https://mpistonesite.wordpress.com

Citation metrics:
Google Scholar: 1532 citations, h-index: 21, i10-index: 29
Mendeley (ID: 54780522600): 1093 citations, h-index: 17
Web of Science ResearcherID (ID: Q-6142-2018): 1001 citations, h-index: 17
Researcher ORCID: https://orcid.org/0000-0001-7560-3146

Associate Professor of Petrology, Geochemistry, and Volcanology, Director of MAGMA MIA research group, Advisor of 1 PhD student, 2 MS students, and 3 BS students at the University of Georgia (USA). PI (out of seven) of the ICDP-sponsored DIVE (Drilling the Ivrea-Verbano zonE) project. Laboratory and field geologist, petrologist, volcanologist, and magma physicist with a strong track record in international collaborative partnerships in Europe and North America. Enthusiastic communicator, team player, and project manager. Skilful in high-pressure and high-temperature experimentation and tomographic microscopy to explore magma degassing, transport, unrest, and eruption.

Language proficiency

Italian (native), English (proficient), French (advanced), German (intermediate).

Education

November 2012: **Doctoral Degree in Earth Science**, ETH-Zurich, Switzerland, on *Physical properties of crystal- and bubble-bearing magmas* (Advisors: Prof. Peter Ulmer, Prof. Luca Caricchi, Dr. Luigi Burlini)

July 2008: **Master Degree in Geodynamics, Geophysics, Volcanology (110/110 summa cum laude)**, Università La Sapienza, Rome, Italy, on *Petrological and physical properties of the Avellino Eruption magma chamber of Somma-Vesuvius* (in Italian) (Advisors: Prof. Raffaello Trigila, Dr. Luca Caricchi, Dr. Luigi Burlini)

October 2006: **Bachelor Degree in Geological Sciences (110/110 summa cum laude)**, Università G. D'Annunzio, Chieti, Italy, on *Investigation on dynamic crystallization of an andesite from Panarea Island, Aeolian Islands, Italy* (in Italian) (Advisors: Dr. Gianluca Iezzi, Dr. Silvio Mollo, Dr. Tonino Traini)

Professional experience

Since August 2025: **Associate Professor**, University of Georgia, US, in *Petrology, Geochemistry, and Volcanology*

August 2019-July 2025: **Assistant Professor**, University of Georgia, US, in *Petrology, Geochemistry, and Volcanology*

January 2017-July 2019: **SNSF-Ambizione Maître Assistant (Lecturer)**, University of Lausanne, Switzerland, on *Petrophysics of the Melt Connectivity Transition: Petrological, Rheological, and Seismic Characterisation of the Continental Moho* (PI: Dr. Mattia Pistone)

November 2014-October 2016: **NSF-GeoPRISMS Research Fellow**, National Museum of Natural History, Smithsonian Institution, Washington DC, US, on *The role of oxygen fugacity in calc-alkaline differentiation and the creation of continental crust at the Aleutian arc* (PIs: Dr. Elizabeth Cottrell and Prof. Katherine A. Kelley)

July-August 2014: **NERC Research Fellow**, Camborne School of Mines, Exeter University, and University of Bristol, United Kingdom, on *Critical metals in nature: crystal-melt partitioning of indium at high temperature and pressure conditions* (PIs: Prof. Jonathan D. Blundy and Dr. Jens Andersen)

June 2014: **Advanced Career SNSF Research Fellow**, University of Bristol, United Kingdom, and University of Missouri-Columbia, US, on *The influence of volatiles on the interaction of mafic and felsic magmas* (PI: Dr. Mattia Pistone; renounced for the NSF-GeoPRISMS Fellowship)

January-June 2014: **ERC Research Fellow**, University of Bristol, United Kingdom, on *The influence of volatiles on the interaction of mafic and felsic magmas* (PI: Prof. Jonathan D. Blundy)

January-December 2013: **Early Career SNSF Research Fellow**, University of Bristol, United Kingdom, on *The influence of volatiles on the interaction of mafic and felsic magmas* (PI: Dr. Mattia Pistone)

October-November 2012: **SAPHYR Postdoc**, ETH-Zurich, Switzerland, on *Seismic anisotropy of the Finero Peridotite (Ivrea Zone, Italy)* (PIs: Prof. Eduard Kissling, Dr. Alba S. Zappone)

Teaching and mentoring ———————————————————————————————

Associate Professor:

2020-pres. Undergraduate level:

GEOL 1001 Natural Hazards

GEOL 1121 Earth Processes and Environment

GEOL 4020 Internal Earth Processes

GEOL 4020L Internal Earth Processes (Petrography Laboratory)

GEOL 4300 Igneous and Metamorphic Petrology

GEOL 4470 Introduction to Research in Petrology

GEOL 4940L Volcanology

FYOS 1001 Magma Mia! Understanding Active Volcanoes using Modern Petrology

FYOS 1001 Journey in the Earth's interior: origin, architecture, and dynamics of

continents

FYOS 1001 Global Citizenship Cluster - Natural Hazards and Critical Metals: Geology as the Answer to Climate Crisis and Geopolitical Concerns

Writing Intensive Program (WIP): https://wip.uga.edu/fall-2021-newsletter/

2020-pres. *Graduate level:*

GEOL 6300 Igneous and Metamorphic Petrology

GEOL 6470 Introduction to Research in Petrology

GEOL 6940L Volcanology

GEOL 8070 Advanced Topics in Petrology

GEOL 8790 Research Project in Petrology

GradFIRST Seminar 7001 Studies of Hazards (SHAZARDS) in Geology

GRSC 8550 Responsible Conduct in Research and Scholarship (co-teaching)

Lecturer:

2018 *Undergraduate level:*

Practical Training in Magmatic Petrology (*Travaux Pratique de Petrologie Magmatique*)

Italian National Scientific Habilitation:

2018 Eligible for Associate Professorship in Geochemistry, Mineralogy, Petrology, Volcanology, and Georesources: https://asn16.cineca.it/pubblico/miur/esito-abilitato/04%252FA1/2/4

Lecture Assistant in courses for undergraduate level:

2008-12 Optical Microscopy of Metamorphic and Igneous Rocks

2009-12 Volcanology

Field Instructor in courses for undergraduate level:

2017-21 Petrology and Volcanology

2013-14 Geology I

2008-12 Volcanology

Advisor of students:

Graduate students:

2025-pres. Allison Hidalgo (*Rheology of magmas from the asthenosphere to volcanoes: experiments and modelling*) [Master; University of Georgia, US]

2025-pres. Andrea Tonato (*The excess gas paradox at volcanoes: does CO_2 favor gas accumulation in mafic magmas?*) [PhD; University of Georgia, US]

2024-pres. Kade McClain (*Filling the gaps in the Northern Andean Volcanic Zone: A petrological analysis of Chimborazo as a proxy for plate flexure*) [Master; University of Georgia, US]

2022-24 Jackson Oakey (*Flow or blow? Understanding magma flow in conduits during*

vesiculation) [Master; University of Georgia, US]
Dissertation: https://openscholar.uga.edu/record/26676?ln=en&v=pdf

2022-24 Kaitlyn Hulsey (*Building up magma reservoirs in the Earth's crust: Case of Stone Mountain*) [Master; University of Georgia, US]
Dissertation: https://openscholar.uga.edu/record/26704?ln=en&v=pdf

2022-24 Carlynn Daniel (*How are paroxysms generated at mafic volcanoes?: Insights into Mt Etna 2020-2022 eruption activity*) [Master; University of Georgia, US]
Dissertation: https://openscholar.uga.edu/record/26691?ln=en&v=pdf

2021-23 Andrew Maendel (*Magma differentiation in the Earth's lower crust: Insights into the analysis of an olivine gabbro of the Ivrea-Verbano Zone, Alps, Italy*) [Master; University of Georgia, US]
Dissertation: https://openscholar.uga.edu/record/2461?ln=en&v=pdf

2020-22 Samuel Oxhorn (*Western Aleutian Volcanism: Defining Magmatic Series Transitions and Petrogenetic Origins*) [Master; University of Georgia, US]
Dissertation: https://openscholar.uga.edu/record/4117?v=pdf

Undergraduate students:

2025-pres. Trista Warner (*When does a dormant volcano wake up? Lessons from Mt Vulture (Italy)*) [University of Georgia, US]

2025-pres. Agigail Roselli Verna (*Multiphase basaltic lava rheology: A case study of Mt Etna*) [University of Georgia, US]

2024-pres. Alexandra Grace Lang (*Mt. Etna's Mercury and Downwind Populations*) [University of Georgia, US]

2023-24 Ruby Jiahui Parcells (*Did Chimborazo volcano (Ecuador) cause the Late Antique Little Ice Age or other climate changes at a regional to global scale?*) [University of Georgia, US]

2022-23 Jeremiah Funke (*Magmatic sulphide systems in the deep crust of the Ivrea-Verbano Zone, Italy*) [University of Georgia, US]

2022-23 Grace Elizabeth Cantele (*Determining mercury concentration in minerals, rocks, and soils at Mt Etna, Italy*) [University of Georgia, US]

2019 Alexia Secrétan (*Magma cannibalism in volcanic and plutonic rocks*) [University of Lausanne, Switzerland]

Co-advisor of students and postdocs:

Postdocs:

2021-23 Amy Ryan (*The Role of Deformation in Triggering Volcanic Eruptions*) [University of Minnesota; Advisor: L. Hansen]

Graduate students:

2018-25 Thomas Herbst (*Degassing and outgassing of crystal-bearing dacite*) [Master/PhD; University of Missouri, Columbia, US; Advisor: A.G. Whittington]

2019-21 Russell Cutts (*Mineralogical and textural alteration of heated tool-stones: advances in understanding fire-cracked rock*) [PhD; University of Georgia; Advisor: E. Garrison]

2019-20 Hüseyin Demir (*Mineral, elemental, and isotopic evidence for the provenance of clay deposits in Sile, NW Turkey*) [Master; University of Georgia; Advisor: P. Schroeder]

2017-18 Selena Galdini (*Petrological, geochemical and rheological modelling of alkaline magma ascent at Fogo Volcano, Cape Verde*) [Master; University of Lausanne, Switzerland; Advisor: S. Pilet]

2013-14 Paul Jarvis (*Phenomena at the interface between two magmas*) [PhD; University of Bristol, United Kingdom; Advisors: J.D. Blundy, K.V. Cashman, H.M. Mader]

Jessica Shields (*Mobilisation of highly viscous flows: Insights from field and laboratory experiments*) [PhD; University of Bristol, United Kingdom; Advisor: H.M. Mader]

Undergraduate students:

2015 Katherine Sheppard (UC Santa Barbara) and Elizabeth Grant (University of Rhode Island (fieldwork in the Western Aleutians) [Undergraduates; Advisors: E. Cottrell, K.A. Kelley]

Mentor in other educational programs:

2021-22 Women in Science (WiSci) Mentorship Program of the University of Georgia

Service

- Member of the Scientific Committee of the 16th European Geopark Conference: https://www.egn2022conference.eu/index.php/organization/committees
- Peer-reviewed Journal Reviewer for 65 original scientific contributions (2013–present), as reported in my Publons profile: https://publons.com/author/1417956/mattia-pistone#profile
- Reviewer for NERC (United Kingdom), NSF (US), and ANR (France) (2014–present).
- Review Panelist for funding agencies NSF (2022) and NASA (2023-2024).
- Guest Editor of two ebooks in Frontiers in Earth Science (2017–2020): *Volumes, Timescales, and Frequency of Magmatic Processes in the Earth's Lithosphere* and *Deep Carbon Science*
- Associate Editor of Frontiers in Earth Science – Section of Petrology (2019–present)
- Primary convener and co-convener of scientific sessions at AGU (2013, 2015–2022, 2025), EGU (2015–2019), IAVCEI (2017, 2023), and Centennial Symposium of MSA (2019)
- Organiser (out of 3) of the ICDP Workshop DIVE (Drilling the Ivrea-Verbano zonE) in Baveno, Italy (May 1–4, 2017), and main organiser of "Journée Petrologique Magmatique" meeting in Lausanne, Switzerland (January 18, 2019)
- Seminar organiser at the School of Earth Sciences, University of Bristol, United Kingdom (2013–2014) and Department of Geology, University of Georgia, US (Spring 2026)

Professional memberships

European Geosciences Union (EGU), American Geophysical Union (AGU), Mineralogical Society of America (MSA), Geological Society of America (GSA), Società Geologica Italiana (SGI), Associazione Italiana di Vulcanologia (AIV), Atlanta Geological Society, American Chemical Society (ACS), National Center for Faculty Development and Diversity (NCFDD), National Association of Geoscience Teachers (NAGT), Sigma Xi – The Scientific Research Honor Society.

Engagement in science communication and outreach

2026 Lecture on *Volcanoes: Why Do They Matter in Our Life?*, Osher Lifelong Learning Institute, University of Georgia, US

Presentation at the Tate Center on *Magma Mia! Deciphering volcano behaviours in the past, present, and future*, First-Year Odyssey Program, Admissions Event, University of Georgia

Public dissemination for 5th-grade students at Gainesville Exploration Academy (Gainesville, GA, US) on *Magma Mia! Magmas, Volcanoes, and Eruptions*

Public dissemination for school teachers in Italy on *L'ottavo pilastro della saggezza: La missione Moho del progetto ICDP-DIVE*, Società Geologica Italiana, Il Caffé di GeologicaMente
https://www.youtube.com/watch?v=EwLmDZg_qZQ

2025 Article on *L'ottavo pilastro della saggezza: La missione Moho del progetto ICDP-DIVE*, Società Geologica Italiana, GeologicaMente 18
https://www.geologicamente.it/282/geologicamente-numero-18.html

Article on *Is friction melting alone sufficient to form pseudotachylytes in deep lithosphere?*, Newsletter August 2025, Atlanta Geological Society:
https://atlantageologicalsociety.org/newsletters-2/

Article on *The Rock Doctor: Measuring the pulse of volcanoes past and present — for the future*, @UGAResearch: https://research.uga.edu/news/the-rock-doctor-measuring-the-pulse-of-volcanos-past-and-present-for-the-future/

Presentation at the Tate Center on *Magma Mia! Deciphering volcano behaviours in the past, present, and future*, First-Year Odyssey Program, Admissions Event, University of Georgia

2024 Video interview in *Sharing Minds: Sampling Rocks*, National Institution of Geophysics and Volcanology of Italy (INGV) as part of the Monitoring Earth's Evolution and Tectonics (MEET), sponsored by Transnational Access (TNA) and National Open Access (NOA) scheme of the Next Generation of European Fund, Integrated Laboratories for Geoscience and Environment (ILGE), Italian National Recovery and Resilience Plan (PNRR)
https://ilge.ct.ingv.it/SHARING%20MINDS1.mov
https://youtu.be/9HWu2ZEGooE?si=O2FGZlQta0ZlhA7k

Article on *Ivrea-Verbano, Fase 1 del Progetto DIVE: un tuffo nelle radici della crosta continentale*, Società Geologica Italiana, GeologicaMente 14
https://www.geologicamente.it/276/geologicamente-numero-14.html

Presentation at the Tate Center on *Magma Mia! Deciphering volcano behaviours in the past, present, and future*, First-Year Odyssey Program, Admissions Event, University of Georgia

2023 Article on *Fase 1 del progetto DIVE nella Zona Ivrea-Verbano: primo touchdown*, Società Geologica Italiana, GeologicaMente 12
https://www.geologicamente.it/274/geologicamente-numero-12.html

Magma Mia! Deciphering volcano behaviours in the past, present, and future, Athens Science Café

Our Past, Present, and Future Below Our Feet: DIVE Drilling Project, TEDxUGA Talk:
https://www.youtube.com/watch?v=qvVHHZUex3E&ab_channel=TEDxTalks
https://tedxuga.com/the-event-2023/#x-content-band-8

2022 *Top Stories of 2022*, @UGAResearch:
https://research.uga.edu/news/top-ugaresearch-stories-of-2022/

Article on *Mattia Pistone travels through human & geological time*, @UGAResearch:
https://research.uga.edu/news/mattia-pistone-travels-through-human-geological-time/

2021 Article on *Esplorando la zona di transizione tra crosta e mantello continentale: Il progetto DIVE nella Zona Ivrea-Verbano (Alpi, Italia)*, Società Geologica Italiana, GeologicaMente 6, https://doi.org/10.3301/GM.2021.06

Webinar on *Volatile cycle in the Earth's continental crust: A carbon tale from the Ivrea-Verbano Zone (Alps, Italy)*, Tech4Culture: Geodiversity and Geoheritage, University of Turin, Italy.

Article on *Research finds link between CO_2, big volcano eruptions*, @UGAResearch:
https://research.uga.edu/news/research-finds-link-between-co2-big-volcano-eruptions/

2020 Webinar on *Tales of the "Far West" Aleutian Volcanoes: There and Back Again*, Osher Lifelong Learning Institute, University of Georgia, US.

Article on *DE BELLO VULCANICO: 40-year scientific effort of "predicting the unpredictable" since 1980 eruption of Mt St Helens* on EGU Blogs:
https://blogs.egu.eu/divisions/nh/2020/07/06/de-bello-vulcanico/?fbclid=IwAR0WDq0vq_e32o4ARH9gukR8VymlyBaV606JGqY335plIqceT93bqv1kXrU

Essay on *DE BELLO VULCANICO or On The Volcanic War: 40-year scientific effort since May 18, 1980 eruption of Mt St Helens* on New Spotlights of Franklin College of UGA:
https://www.franklin.uga.edu/news/stories/2020/40-years-mt-st-helens-eruption

2017 Article on *Lava highway in Kanaga Island* on Imaggeo on Mondays of the EGU Blogs:
https://blogs.egu.eu/geolog/2017/03/20/imaggeo-on-mondays-lava-highway-in-kanaga-island/

2016 **Expert scientist** at Q?rius of the Museum of Natural History of the Smithsonian Institution

Article on *Ascensus ad coelum, descensus ad Inferos – Report from the Field - 2015 GeoPRISMS Community Platform in the Aleutians*, GeoPRISMS Newsletter, Issue no. 35, Spring 2016: http://anyflip.com/nnix/uzuv/basic

2013 News from Cabot Institute, University of Bristol:
http://www.bristol.ac.uk/cabot/news/2013/278.html

2011-12 **Museum guide** at Focus Terra Museum of ETH-Zurich

Participation to selected schools and workshops

2025 Community Research Prioritization for Volcanoes across the Alaska-Aleutian Arc Workshop (National Science Foundation)

2023 Teaching Petrology Workshop (National Science Foundation)

Reflection on Race Workshop (University of Georgia)

Electric Mobility Summit (University of Georgia)

UGA Academy Teaching Symposium on AI tools

2020 Early Career Workshop (National Science Foundation)

2017 Mt Etna – Deep Carbon Observatory (DCO) Early Career Scientist Workshop (Nicolosi, Italy)

ICDP Workshop DIVE (Drilling the Ivrea-Verbano zonE) (Baveno, Italy)

2016 Second Deep Carbon Observatory (DCO) Summer School, Yellowstone National Park (Montana and Wyoming, US)

2010 Microstructures and Physico-Chemical Properties of Earth and Planetary Materials, Società Italiana di Mineralogia e Petrologia (Verbania-Pallanza, Italy)

Rheology and Physical Properties of Magmas: Controls on Dynamics of Magma Transport, Storage and Eruption (Zürich, Switzerland)

2009-13 4D-Adamello Pro-School (Swiss National Science Foundation)

Awards

2026 2026-2027 Aspire Fellow, University of Georgia

2026-2027 Industry Forward Cohort Fellow, University of Georgia

2026 I-CORPS Fellow, University of Georgia

2025 2026-2028 Sigma Xi, The Scientific Research Honor Society, Distinguished Lecturer

2024 2024-2025 Geological Society of America – Continental Scientific Drilling Distinguished Lecturer

Student Career Success Influencer Award 2024

2023 First-Year Odyssey Teaching Award, University of Georgia

M.G. Michael Award, Franklin College of Arts and Sciences, University of Georgia

2021 2021-2023 Lilly Teaching Fellowship, University of Georgia

Student Career Success Influencer Award 2021

2020 Outstanding Contribution in Reviewing Award by the Editorial Board of Lithos, Elsevier, Amsterdam, The Netherlands

2019 Outstanding Contribution in Reviewing Award by the Editorial Board of Earth and Planetary Science Letters, Elsevier, Amsterdam, The Netherlands

2017 Outstanding Contribution in Reviewing Award by the Editorial Board of Journal of Volcanology and Geothermal Research, Elsevier, Amsterdam, The Netherlands

2014 EU Transnational Access Programme CALIPSO Award

2012 Outstanding Young Scientist Award by the Earth Magnetism and Rock Physics Division of the EGU: https://www.egu.eu/awards-medals/ospp-award/2012/mattia-pistone/

2008 Excellence Award for Master Student of Earth Sciences, La Sapienza University, Rome, Italy

Research grants with PI, co-PI, or Mentor role (> 100,000 in bold)

Current Funds:

The excess gas paradox at volcanoes: does CO_2 favor gas accumulation in mafic magmas?, National Science Foundation – Division of Earth Science – Petrology and Geochemistry (Award #2322935) [**US$ 442,241**] Role: PI

Critical minerals vs. energy independence: Resolving the conundrum via phytomining of metals, Multidisciplinary Seed Grant of the Rapid Interdisciplinary Proposals Program, University of Georgia, US [US$ 10,000] Role: PI

Mt Vulture volcano (Italy): Insights into the reawakening of a volcanic "Sleeping Beauty", Office of Research and Office of Global Engagement, University of Georgia, US [US$ 15,000] Role: PI

Powering the high-temperature and high-pressure capabilities of MAGMA MIA Lab, Research Intensification System, Franklin College of Arts & Sciences, University of Georgia, US [US$ 12,000] Role: PI

SAKURA - From Mantle Flow to Magma Migration: A Multiscale Investigation of Lithospheric-Asthenospheric Coupling, Earth Telescope Research Programme of the National Institute of Geophysics and Volcanology of Italy and Ministry of University and Research of Italy [**€ 2,000,000**] Role: co-PI (sole PI not based in an Italian institution)

DIVE: Drilling the Ivrea-Verbano zonE – Phase 1: Drilling into the pre-Permian mafic and felsic lower crust, International Continental Scientific Drilling Program (04-2020) [**US$ 1,000,000**] Role: PI

2026 *Critical minerals vs. energy independence: Resolving the conundrum via phytomining of metals,* Multidisciplinary Seed Grant of the Rapid Interdisciplinary Proposals Program, University of Georgia, US [US$ 10,000] Role: PI

Mt Vulture volcano (Italy): Insights into the reawakening of a volcanic "Sleeping Beauty" Office of Research and Office of Global Engagement, University of Georgia, US [US$ 15,000] Role: PI

Powering the high-temperature and high-pressure capabilities of MAGMA MIA Lab, Research Intensification System, Franklin College of Arts & Sciences, University of Georgia, US [US$ 12,000] Role: PI

2025 *SAKURA - From Mantle Flow to Magma Migration: A Multiscale Investigation of Lithospheric-Asthenospheric Coupling*, Earth Telescope Research Programme of the National Institute of Geophysics and Volcanology of Italy and Ministry of University and Research of Italy **[€ 2,000,000**] Role: co-PI (sole PI not based in an Italian institution)

2024 *CLIMAX: Was Chimborazo volcano (Ecuador) the climate modulator leading to the Antonine Plague in the Roman Empire during the second century AD?*, Teaming for Interdisciplinary Research Pre-Seed Program, University of Georgia [US$ 4,250] Role: PI

2023 *The excess gas paradox at volcanoes: does CO_2 favor gas accumulation in mafic magmas?*, National Science Foundation – Division of Earth Science – Petrology and Geochemistry (Award #2322935) [**US$ 442,241**] Role: PI

To be or not be in the Earth? Carbon cycle in the continental crust, M.G. Michael Award, Franklin College of Arts and Sciences, University of Georgia [US$ 3,000] Role: PI

2022 *Tracking Mercury Pollution Sources: Developing an Analytical Method for Measuring Stable Mercury Isotopes in Environmental and Human Biological Samples*, Teaming for Interdisciplinary Research Pre-Seed Program, University of Georgia [US$ 3,500] Role: co-PI

Chimborazo: ESPOCH International Conference, International Travel Fund of the Provost's Office, University of Georgia [US$ 1,850] Role: PI

MERRIE VOLCANO: MErcury Release during eRuptIons at Etna VOLCANO, Office of Research and Office of Global Engagement, University of Georgia, US [US$ 8,000] Role: PI

2021 *BIO-VOLCANO: Rocks, soils, and bioaccumulators as predictors of volcanic eruptions*, Teaming for Interdisciplinary Research Pre-Seed Program, University of Georgia [US$ 4,750] Role: PI

The Role of Deformation in Triggering Volcanic Eruptions, National Science Foundation – Division of Earth Science – Postdoctoral Fellowship to Dr. Amy Ryan (University of Minnesota) [**US$ 174,000**] Role: Mentor

2020 *DE BELLO VULCANICO or The Volcanic War: Forecasting Gas Release versus Retention in Magmas prior to Volcanic Eruptions*, Sarah H. Moss Fellowship, University of Georgia [US$ 10,000] Role: PI

DIVE: Drilling the Ivrea-Verbano zonE – Phase 1: Drilling into the pre-Permian mafic and felsic lower crust, International Continental Scientific Drilling Program (04-2020) [**US$ 1,000,000**] Role: PI out of 7

Felsic melt and gas mobilisation during magma solidification: An experimental study at 1.1 kbar, Swiss National Science Foundation, Open Access Article (PZAC-2_198187) [CHF 2,426] Role: PI

COOLEST VOLCANO: CO_2 stOrage and reLEase at Stromboli VOLCANO, Office of Research and Office of Global Engagement, University of Georgia [US$ 4,000] Role: PI

2019 *Fluids, melts and pressure changes during fracturing of the lower crust*, Terrestrial Magmatic System Research Platform, University of Mainz [€ 8,800] Role: co-PI

Bulk seismic properties of mantle wedge peridotites, Terrestrial Magmatic System Research Platform, University of Mainz [€ 5,000] Role: co-PI

DE BELLO VULCANICO or The Volcanic War: Forecasting Magma Permeability versus Compressibility and Eruption Magnitude, Swiss National Science Foundation – Eccellenza Professorial Fellowship (PCEFP2_186904) Role: PI [**CHF 999,988**] {renounced for the tenure-track Assistant Professorship at the University of Georgia}

2017 *The Deep Carbon Cycle (DCC) through geological time: An interdisciplinary synthesis of the carbon cycle in the Earth's lithosphere-biosphere system*, Alfred P. Sloan Foundation – Deep Carbon Observatory – DCO Synthesis Proposal (G-2017-9997) [**US$ 130,000**] Role: co-PI

2016 *Petrophysics of the Melt Connectivity Transition: Petrological, Rheological, and Seismic Characterisation of the Continental Moho*, Swiss National Science Foundation – Ambizione Fellowship (PZ00P2_168166) [**CHF 483,238**] Role: PI

2014 *Workshop on drilling the continental crust to the Moho transition zone (Ivrea-Verbano Zone, Italy)*, International Continental Scientific Drilling Program (17-2016) [US$ 50,000] Role: PI out of 3

The Influence of Volatiles on the Interaction of Mafic and Felsic Magmas, Swiss National Science Foundation – Advanced Postdoc Mobility Fellowship (P300P2_154574) [CHF 98,000] Role: PI {renounced for the NSF-GeoPRISMS Fellowship at the Smithsonian Institution, Washington, DC, US}

Understanding the dynamics of explosive eruptions triggered by mafic intrusions into felsic reservoirs using 4D in situ tomographic microscopy, European Union Transnational Access Programme CALIPSO (number 312284; FP7/2007-2013) [€ 1,000] Role: PI

2012 *The Influence of Volatiles on the Interaction of Mafic and Felsic Magmas*, Swiss National Science Foundation – Early Postdoc Mobility Fellowship (PBEZP2_142922) [CHF 43,000] Role: PI

2009-21 Free-of-cost access to synchrotron and nuclear facilities: eight for TOMCAT beamline, SLS, PSI and one for NEUTRA beamline, SINQ, PSI (Villigen, Switzerland), one for SYRMEP beamline, Elettra (Basovizza, Italy), one for ID19 beamline, ESRF (Grenoble, France), and two for GSECARS beamline, APS (Argonne, IL, US) [all combined proposals: **US$ 920,000**] Role: PI

Instructional grants with PI, co-PI, or Mentor role (> 100,000 in bold)

2026 *Global Citizenship Cluster - Natural Hazards and Critical Metals: Geology as the Answer to Climate Crisis and Geopolitical Concerns*, First-Year Odyssey Program, UGA – Franklin College of Arts & Sciences [US$ 3,500] Role: PI

Journey into the Earth's interior: exploring the origin, architecture, and dynamics of continents, First-Year Odyssey Program, UGA – Franklin College of Arts & Sciences [US$ 3,500] Role: PI

2025 *Global Citizenship Cluster - Natural Hazards and Critical Metals: Geology as the Answer to Climate Crisis and Geopolitical Concerns*, First-Year Odyssey Program, UGA – Franklin College of Arts & Sciences [US$ 3,500] Role: PI

MAGMA MIA! Understanding active volcanoes with modern petrology, First-Year Odyssey Program, UGA – Franklin College of Arts & Sciences [US$ 3,500] Role: PI

2024 *4D PETROLAB: The Art of Grinding and Polishing Geomaterials*, Teaching Enhancement and Innovation Fund [US$ 3,000] Role: PI

Global Citizenship Cluster - Natural Hazards and Critical Metals: Geology as the Answer to Climate Crisis and Geopolitical Concerns, First-Year Odyssey Program, UGA – Franklin College of Arts & Sciences [US$ 3,500] Role: PI

MAGMA MIA! Understanding active volcanoes with modern petrology, First-Year Odyssey Program, UGA – Franklin College of Arts & Sciences [US$ 3,500] Role: PI

2023 First-Year Odyssey Teaching Award, University of Georgia [US$ 2,500] Role: PI

Global Citizenship Cluster - Natural Hazards and Critical Metals: Geology as the Answer to Climate Crisis and Geopolitical Concerns, First-Year Odyssey Program, UGA – Franklin College of Arts & Sciences [US$ 3,500] Role: PI

2022 *Lilly Teaching Fellowship*, UGA Center For Teaching & Learning [US$ 2,000] Role: PI

Studies of Hazards (SHAZARDS) in Geology, GradFIRST Seminar Program, UGA – Franklin College of Arts & Science [US$ 3,500] Role: PI

MAGMA MIA! Understanding active volcanoes with modern petrology, First-Year Odyssey Program, UGA – Franklin College of Arts & Sciences [US$ 3,500] Role: PI

Journey into the Earth's interior: exploring the origin, architecture, and dynamics of continents, First-Year Odyssey Program, UGA – Franklin College of Arts & Sciences [US$ 3,500] Role: PI

Flow or blow? Understanding the physics of gas accumulation leading to explosive volcanic eruptions through experiential learning in lab and class with a gas pycnometer, UGA Learning Technologies Grant [US$ 18,470] Role: PI

2021 *Replicating minerals to volcanoes by 3D printing technology: bringing 3D geology across scales into the classroom and in the field*, UGA Learning Technologies Grant [US$ 9,984] Role: PI

MAGMA MIA! Understanding active volcanoes with modern petrology, First-Year Odyssey Program, UGA – Franklin College of Arts & Science [US$ 3,500] Role: PI

Writing Fellows, UGA – Center for Teaching and Learning [US$ 1,000] Role: PI

Faculty Interest Group, UGA – Center for Teaching and Learning [US$ 1,000] Role: PI

2020 *MAGMA MIA! Understanding active volcanoes with modern petrology*, First-Year Odyssey Program, UGA – Franklin College of Arts & Science [US$ 3,842] Role: PI

Rock Digitalization for Optical Microscopy, UGA – Franklin College of Arts & Science [US$ 1,147] Role: PI

4D PETROLAB: A New Digital Frontier for Learning Optical Microscopy of Geological Materials in 3D Space and Real-Time, UGA Learning Technologies Grant [US$ 24,263] Role: PI

Peer-reviewed publication list

Articles:

2026

Pistone M, Venier M, Ziberna L, Zanetti A, Hetényi G, Greenwood A, Giovannelli D, Pierdominici S, Toy VG, Zappone AS, Pondrelli S, Müntener O (2026) Moho mission to the foundations of continents: The ICDP DIVE Drilling Project in the Ivrea-Verbano Zone, Alps, Italy. Rendiconti dei Lincei, Scienze Fisiche e Naturali, https://doi.org/10.1007/s12210-026-01450-9

Narduzzi F, Covelli S, **Pistone M**, Pitcairn I, Tribuzio R, Ziberna L (2026) Negligible recycling of Hg into the Earth's mantle?. *Geochemical Perspective Letters*, 4I: 12-17, https://doi.org/10.7185/geochemlet.2626

2025

Pistone M, Toy VG, Ofman MW, Formo E, Robyr M (2025) Can pseudotachylytes form via fracture-induced decompression melting under hydrous conditions?. *Tektonika*, 3, 58-80, https://doi.org/10.55575/tektonika2025.3.2.64

Narduzzi F, Covelli S, Floreani F, Pavoni E, Petranich E, Jantzi SC, **Pistone M**, Černok A, Venier M, Crosera M, Ziberna L (2025) Strengths and weaknesses of the analytical techniques used for measuring low mercury concentrations (< 10 ng g^{-1}) in crystalline rocks: Direct Mercury Analyzer versus Cold-Vapour-Atomic-Fluorescence-Spectroscopy. *Geostandards and Geoanalytical Research*, 49: 295-314, https://doi:10.1111/ggr.12606

2024

Ryan AG, Hansen LN, Dillman A, **Pistone M**, Zimmerman ME, Williams SA (2024) Shear-induced dilation and dike formation during mush deformation. *Earth and Planetary Science Letters*, 651, https://doi.org/10.1016/j.epsl.2024.119164

Li J, Caspari E, Greenwood A, Pierdominici S, Lemke K, Venier M, Kück J, Baron L, **Pistone M**, Petri B, Ziberna L, Hetényi G (2024) Integrated rock mass characterization of the lower continental crust along the ICDP-DIVE 5071_1_B borehole in the Ivrea-Verbano Zone. *Geochemistry, Geophysics, Geosystems*, 25, e2024GC011707, https://doi.org/10.1029/2024GC011707

Herbst T, Whittington AG, **Pistone M**, Schiffbauer JD, Selly T (2024) Release the cracking: Controls on gas retention in crystal-rich magmas. *Bulletin of Volcanology*, 86, https://doi.org/10.1007/s00445-024-01747-3

Hetényi G, Baron L, Scarponi M, Subedi S, Michailos K, Dal F, Gerle A, Petri B, Zwahlen J, Langone A, Greenwood A, Ziberna L, **Pistone M**, Zanetti A, Müntener O (2024) Report on an open dataset to constrain the Balmuccia peridotite body (Ivrea-Verbano Zone, Italy) through a participative gravity-modelling challenge. *Swiss Journal of Geoscience*, 117, https://doi.org/10.1186/s00015-023-00450-3

2023

Sarmiento FO, Haller A, Marchant C, Yoshida M, Leigh DS, Woosnam K, Porinchu DF, Gandhi K, King EG, **Pistone M**, Kavoori A, Calabria J, Alcántara-Ayala I, Chávez R, Gunya A, Yépez A, Lee S, Reap J (2023) 4D Global Montology: Toward convergent and transdisciplinary mountain sciences across time and space. *Pirineos*, 178, e075, https://doi.org/10.3989/pirineos.2023.178001

2022

Ryan A, Hansen LN, Zimmermann ME, **Pistone M** (2022) Melt migration in crystal mushes by viscous fingering: insights from high-temperature, high-pressure experiments. *Journal of Geophysical Research - Solid Earth*, 127, e2022JB024447, https://doi.org/10.1029/2022JB024447

Pistone M, Formo E, Whittington AG, Herbst T, Cottrell E (2022) Direct nanoscale observations of degassing-induced crystallisation in felsic magmas. *Contributions to Mineralogy and Petrology*, 177, 38, https://doi.org/10.1007/s00410-022-01900-1

Zahirovic S, Eleish A, Doss S, Pall J, Cannon J, **Pistone M**, Tetley MG, Young A, Fox P (2022) Subduction and carbonate platform interactions. *Geoscience Data Journal*, 2022:00, 1-13, https://doi:10.1002/gdj3.146

2021

Pistone M, Fife JL, Tisato N, Caricchi L, Reusser E, Ulmer P, Mader K, Marone F (2021) Seismic attenuation during magma vesiculation: A combination of laboratory constraints and modeling. *Geophysical Research Letters*, 48, e2020GL092315, https://doi.org/10.1029/2020GL092315

Pistone M, Caricchi L, Ulmer P (2021) CO_2 favors the accumulation of excess fluids in felsic magmas. *Terra Nova*, 2020;00:1-9, https://doi.org/10.1111/ter.12496

2020

Pistone M, Ziberna L, Hetényi G, Scarponi M, Zanetti A, Müntener O (2020) Joint geophysical-petrological modeling on the Ivrea geophysical body beneath Valsesia, Italy: Constraints on the continental lower crust. *Geochemistry, Geophysics, Geosystems*, 21, e2020GC009397, https://doi.org/10.1029/2020GC009397

Scarponi M, Hetényi G, Berthet T, Baron L, Manzotti P, Petri B, **Pistone M**, Müntener O (2020) New gravity data and 3D density model constraints on the Ivrea Geophysical Body (Western Alps). *Geophysical Journal International*, ggaa263, https://doi.org/10.1093/gji/ggaa263

Pistone M, Baumgartner LP, Bégué F, Jarvis P, Bloch E, Robyr M, Müntener O, Sisson TW, Blundy JD (2020) Felsic melt and gas mobilisation during magma solidification: An experimental study at 1.1 kbar. *Frontiers in Earth Science*, 8, 175, https://doi.org/10.3389/feart.2020.00175

Pistone M, Racek M, Štípska P (2020) Effects of diffusion of water and migration of melts in crustal rocks: an experimental study. *Chemical Geology*, 540, 119548, https://doi.org/10.1016/j.chemgeo.2020.119548

Petri B, Almqvist BSG, **Pistone M** (2020) 3D rock fabric analysis using micro-tomography: an introduction to the open source TomoFab Matlab code. *Computers & Geosciences*, 138, 104444, https://doi.org/10.1016/j.cageo.2020.104444

2018

Kudrna-Prašek M, **Pistone M**, Baker DR, Sodini N, Marinoni N, Lanzafame G, Mancini L (2018). A compact and flexible induction furnace for in-situ X-ray microradiograhy and computed microtomography at Elettra: characterisation and first tests. *Journal of Synchrotron Radiation*, 25, https://doi:10.1107/S1600577518005970

2017

Pistone M, Müntener O, Ziberna L, Hetényi G, Zanetti A (2017) Report on the ICDP Workshop DIVE (Drilling the Ivrea-Verbano zonE). *Scientific Drilling*, 23, 47-56, https://doi.org/10.5194/sd-23-47-2017

Pistone M, Whittington AG, Andrews BJ, Cottrell E (2017) Crystal-rich lava dome extrusion during vesiculation: an experimental study. *Journal of Volcanology and Geothermal Research*, 347, 1-14, https://doi.org/10.1016/j.jvolgeores.2017.06.018

Morrison S, **Pistone M**, Kohl L (2017) Studying Yellowstone by integrating deep carbon science. *EOS,* 98*,* https://doi.org/10.1029/2017EO076209

Pistone M, Blundy JD, Brooker RA, EIMF (2017) Water transfer during magma mixing events: insights into melt segregation from felsic crystal mushes. *American Mineralogist*, 102, 766-776 http://dx.doi.org/10.2138/am-2017-5793

2016

Zellmer GF, **Pistone M**, Iizuka Y, Andrews BJ, Gomez-Tuena A, Straub SM, Cottrell E (2016) Petrogenesis of antecryst-bearing arc basalts from the Trans-Mexican Volcanic Belt: insights into along-arc variations in magma ponding depths, H_2O contents, and surface heat flux. *American Mineralogist*, 101, 2405-2422, https://doi.org/10.2138/am-2016-5701

Pistone M, Cordonnier B, Ulmer P, Caricchi L (2016) Rheological flow laws for multiphase magmas: an empirical approach. *Journal of Volcanology and Geothermal Research*, 321, 158-170, https://doi.org/10.1016/j.jvolgeores.2016.04.029

Shields J, Mader HM, Caricchi L, Tuffen H, Mueller S, **Pistone M**, Baumgartner L (2016) Unravelling textural heterogeneity in obsidian: shear-induced outgassing in the Rocche Rosse flow. *Journal of Volcanology and Geothermal Research*, 310, 137-158, https://doi.org/10.1016/j.jvolgeores.2015.12.003

Pistone M, Blundy JD, Brooker RA, EIMF (2016) Textural and chemical consequences of interaction between hydrous mafic and felsic magmas: an experimental study. *Contributions to Mineralogy and Petrology*, 171, https://doi:10.1007/s00410-015-1218-4

2015

Pistone M, Caricchi L, Fife JL, Mader K, Ulmer P (2015) In situ X-ray tomographic microscopy observations of vesiculation of bubble-free and bubble-bearing magmas. *Bullettin of Volcanology*, 77, https://doi:10.1007/s00445-015-0992-1

Pistone M, Caricchi L, Cordonnier B, Ulmer P, Marone F (2015) The viscous to brittle transition in bubble- and crystal-bearing magmas. *Frontiers in Earth Sciences*, 3, https://doi:10.3389/feart.2015.00071

Pistone M, Arzilli F, Dobson KJ, Cordonnier B, Reusser E, Ulmer P, Marone F, Whittington AG, Mancini L, Fife JL, Blundy JD (2015) Gas-driven filter pressing in magmas: insights into in situ melt segregation from crystal mushes. *Geology*, 43, 699-702, https://doi.org/10.1130/G36766.1

2014

Shields J, Mader HM, **Pistone M**, Floess D, Caricchi L, Putlitz B (2014) Strain-induced outgassing of crystal- and bubble-bearing magmas. *Journal of Geophysical Research*, 119, https://doi:10.1002/2014JB011111

2013

Pistone M, Caricchi L, Ulmer P, Reusser E, Ardia P (2013) Rheology of volatile-bearing crystal mushes: mobilization vs. viscous death. *Chemical Geology*, 345, 16-39, https://doi.org/10.1016/j.chemgeo.2013.02.007

Madonna C, Quintal B, Frehner M, Almqvist BSG, Tisato N, **Pistone M**, Marone F, Saenger E (2013) Synchrotron-based X-ray tomographic microscopy for rock microstructure investigations, *Geophysics*, 78, D53-D64, https://doi:10.1190/geo2012-0113.1

2012

Pistone M, Caricchi L, Ulmer P, Burlini L, Ardia P, Reusser E, Marone F, Arbaret L (2012) Deformation experiments of bubble- and crystal-bearing magmas: rheological and microstructural analysis. *Journal of Geophysical Research*, 117, https://doi:10.1029/2011JB008986

Cordonnier B, Caricchi L, **Pistone M**, Castro J, Hess K-U, Gottschaller S, Manga M, Dingwell DB, Burlini L (2012) Direct observation of magma rupture and healing. *Geology*, 40, 611-615, https://doi.org/10.1130/G3914.1

Fife JL, Rappaz M, **Pistone M**, Celcer T, Mikuljan G, Stampanoni M (2012) Development of a laser-based heating system for in-situ synchrotron-based X-ray tomographic microscopy. *Journal of Synchrotron Radiation*, 19, 352-358, https://doi:10.1107/S0909049512003287 [This study on journal volume cover]

2011

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, https://doi:10.1007/s00445-011-0471-2

Books (*), book chapters (**), and editorials (***):

2025

****** Okumura S, Bain AA, Chevrel MO, Kendrick JE, Llewellin EW, **Pistone M**, Vona A, Whittington AG (2025) Chapter 2.3 Physical properties of magmas and their evolution during storage, transport, eruption and emplacement – PART 1: Tectonics and plumbing systems. In Caricchi L, Bonadonna C, Packowska A, Clarke A, Lowenstern J (eds) Encyclopaedia of Volcanoes, 3rd edition, Elsevier, https://doi.org/10.31223/X5ST63

2021

** Jarvis PA, **Pistone M**, Secretan A, Blundy JD, Cashman KV, Mader HM, Baumgartner LP (2021) Crystal and volatile controls on the mixing and mingling of magmas. In Masotta M (ed), Crustal Magmatic System Evolution: Anatomy, Architecture and Physico-Chemical Processes, *AGU Book*, https://doi.org/10.1002/9781119564485.ch6

2020

*** Cardace D, Bower DJ, Daniel I, Ionescu A, Mikhail S, **Pistone M,** Zahirovic S (2020) Editorial: Deep Carbon Science. *Frontiers in Earth Science*, 8, 611295, https://doi:10.3389/feart.2020.611295

* **Pistone M**, Taisne B, Dobson K, eds. (2020) Volumes, Timescales, and Frequency of Magmatic Processes in the Earth's Lithosphere – Part I and II. *Frontiers in Earth Science*, Lausanne: Frontiers Media SA, https://doi:10.3389/978-2-88963-777-5

*** **Pistone M**, Taisne B, Dobson KJ (2020) Editorial: Volumes, Timescales, and Frequency of Magmatic Processes in the Earth's Lithosphere. *Frontiers in Earth Science*, 8, 118, https://doi:10.3389/feart.2020.00118

Data Repositories:

2026

Tonato A, Andronico D, Corsaro RA, Caruso S, **Pistone M**, Cristaldi A (2026) CAMSIZER Particle Size Data from Explosive Paroxysms of Mt. Etna (2011–2025): GFZ Data Services. https://doi.org/10.5880/fidgeo.2026.037

2025

Pistone M, Lang AG, Andronico D (2025) CAMSIZER Data from the Sedimentology and Optical Microscopy Laboratory of the INGV Observatory of Mt. Etna. GFZ Data Services. https://doi.org/10.5880/fidgeo.2025.085

Pistone M, Toy VG, Ofman MW, Formo E, Robyr M (2025) Supplementary materials associated to the peer-reviewed contribution on "Can pseudotachylytes form via fracture-induced decompression melting under hydrous conditions?", published in Tektonika. *Zenodo*, https://doi:10.5281/zenodo.16884827

Narduzzi F, Covelli S, Floreani F, Pavoni E, Petranich E, Jantzi SC, **Pistone M**, Černok A, Venier M, Crosera M, Ziberna L (2025) Supplementary figures and geochemical dataset supporting the manuscript on "Strengths and weaknesses of the analytical techniques used for measuring low mercury concentrations (< 10 ng g^{-1}) in crystalline rocks: Direct Mercury Analyzer versus Cold-Vapour-Atomic-Fluorescence-Spectroscopy". *Zenodo*, https://doi:10.5281/zenodo.14577500

2024

Ryan AG, Hansen LN, Dillman A, **Pistone M**, Zimmerman ME, Williams SA (2024) Data for "Shear-induced dilation and dike formation during mush deformation" published in Earth and Planetary Science Letters. *Mendeley Data*, V1, https://data.mendeley.com/datasets/tw3bbz62ws/1

Oxhorn SB, **Pistone M** (2024) Gareloi and Kiska bulk whole-rock multielement data, version 1.0 *Interdisciplinary Earth Data Alliance (IEDA)*, https://doi.org/10.60520/IEDA/113272

Hetényi G, Baron L, Scarponi, M, Subedi S, Michailos K, Dal F, Gerle A, Petri B, Zwahlen J, Langone A, Greenwood A, Ziberna L, **Pistone M**, Zanetti A, Müntener O (2024) Participative gravity-modelling challenge to constrain the Balmuccia peridotite body (Ivrea-Verbano Zone, Italy). *Zenodo*, https://zenodo.org/records/10390437

2021

Pistone M, Fife JL, Tisato N, Caricchi L, Reusser E, Ulmer P, Mader K, Marone F (2021) Tomographic data from GRL paper on "Seismic attenuation during magma vesiculation: A combination of laboratory constraints and modeling". *Paul Scherrer Institut*, https://doi.org/10.16907/a672b15a-9973-4d92-bf1e-3488cdfb4d1b

Pistone M, Fife JL, Tisato N, Caricchi L, Reusser E, Ulmer P, Mader K, Marone F (2021) Table 1 from GRL paper on "Seismic attenuation during magma vesiculation: A combination of laboratory constraints and modeling". *Zenodo*, https://zenodo.org/record/4651226#.YGYtsGiQi_t

2020

Pistone M, Ziberna L, Hetényi G, Scarponi M, Zanetti A, Müntener O (2020) Data Tables from contribution titled "Joint geophysical-petrological modeling on the Ivrea geophysical body beneath Valsesia, Italy: Constraints on the continental lower crust" published in Geochemistry, Geophysics, Geosystems. *Zenodo*, https://zenodo.org/record/4247516#.X6QjdttCdYg, https://doi:10.5281/zenodo.4247516

Reports:

2025

Greenwood A, Venier M, Hetényi G, Ziberna L, Heeschen K, Pacchiega L, Lemke K, Dutoit H, Bonazzi M, Degen S, Li J, Secrétan A, Trabi B, Tholen S, Lefeuvre N, Auclair S, Mariani D, Del Rio M, Černok A, Bhattacharyya A, Narduzzi F, Mansouri H, Urueña C, Beltrame M, Hawemann F, Velicogna M, Toy V, Dominique J, Longo A, Tonietti L, Barosa B, Brusca J, Nappi N, Gallo G, Esposito M, Diana SC, Bastianoni A, Eckert EM, Confal JM, Pondrelli S, Piana Agostinetti N, Tertyshnikov K, Caspari E, Truche L, Wiersberg T, Baron L, Giovannelli D, **Pistone M**, Zanetti A, Müntener O (2025) Drilling the Ivrea-Verbano zonE: DIVE 1 – ICDP Operational Report. *Potsdam: GFZ Data Services*, pp. 109, https://doi:10.48440/ICDP.5071.001

White Papers:

2024

Myers M, Masterlark T, Abers G, Bizimis M, Black B, Clarke A, DePaolo D, Eddy MP, Eichelberger J, Finlayson V, Fischer T, Jackson M, Konrad K, Lowenstern J, **Pistone M**, Poland M, Schmandt B, (2024) Magmatic Systems Science Planning for Continental Drilling and Coring 2024. White paper for the National Science Foundation.

Errata:

2016

Zellmer GF, **Pistone M**, Iizuka Y, Andrews BJ, Gómez-Tuena A, Straub SM, Cottrell E (2016) Petrogenesis of antecryst-bearing arc basalts from the Trans-Mexican Volcanic Belt: Insights into along-arc variations in magma-mush ponding depths, H2O contents, and surface heat flux. *American Mineralogist*, 101, 2405-2422, https://doi.org/10.2138/am-2016-5701. Erratum DOI: http://dx.doi.org/10.2138/am-2021-E10632

Invited seminar (*), webinar (**), and Distinguished Lecture (***)

*(June 2026) *How much gas can be retained in magmas prior to eruptions? Insights from field and laboratory measurements*, Department of Physics and Department of Biological, Geological, and Environmental Sciences, University of Bologna, Italy.

*(March 2026) *How much gas can be retained in magmas prior to eruptions? Insights from field and laboratory measurements*, School of the Earth, Ocean and Environment, University of South Carolina, US.

*(March 2026) *Exploring gas accumulation in magmas: Bridging the gap between field and laboratory measurements*, Jackson School of Geosciences, Department of Earth and Planetary Sciences, University of Texas at Austin, US.

*(February 2026) *Mt Etna (Italy): A natural laboratory to apply transdisciplinary research on the physics of gas accumulation, level of eruption intensity, and risks linked to metal dispersion*, School of Earth and Atmospheric Sciences, College of Sciences, Georgia Institute of Technology, US.

**(February 2026) *Magmas, volcanoes, and astenosphere-lithophere structures along the 41° latitude: laboratory analyses, experiments, and modelling*, Istituto Nazionale di Geofisica e Vulcanologia, Rome, Italy.

*(December 2025) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Continental Scientific Drilling and International Continental Scientific Drilling Program Town Hall, 2026 AGU Fall Meeting, New Orleans, US.

*(November 2025) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Department of Earth and Environmental Sciences, University of Pennsylvania, US.

*(October 2025) *Living under the shadow of active volcanoes: Lessons from three cases in Italy*, Department of Geography, University of Georgia, US.

*(October 2025) *Petrology and Volcanology of Chimborazo*, 2025 Semana de la Ciencia y Tecnología (SECTEI), University of Georgia, US.

*(September 2025) *Magma Mia! Studying volcanoes to assess hazards and resources*, Morehead Honors College, University of Georgia, US.

***(June 2025) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Geological Society of America – Continental Scientific Drilling Distinguished Lecture, Scripps Institution of Oceanography, University of California in San Diego, US.

*(May 2025) *Database: Whole rock data for the Western Aleutians*, Community Research Prioritization for Volcanoes across the Alaska-Aleutian Arc Workshop – National Science Foundation, University of Alaska in Anchorage, US.

***(May 2025) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Geological Society of America – Continental Scientific Drilling Distinguished Lecture, Lamont Doherty Observatory, Columbia University, US.

***(April 2025) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Geological Society of America – Continental Scientific Drilling Distinguished Lecture, School of Sustainability, Stanford University, US.

***(April 2025) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Geological Society of America – Continental Scientific Drilling Distinguished Lecture, United States Geological Survey in NASA Ames Research Park, US.

***(April 2025) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Geological Society of America – Continental Scientific Drilling Distinguished Lecture, Department of Geosciences, University of Alaska Fairbanks, US.

***(April 2025) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Geological Society of America – Continental Scientific Drilling Distinguished Lecture, Department of Geosciences, University of Arizona, US.

***(March 2025) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Geological Society of America – Continental Scientific Drilling Distinguished Lecture, Department of Geology and Geophysics, University of Utah, US.

***(March 2025) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Geological Society of America – Continental Scientific Drilling Distinguished Lecture, School of Earth, Environment and Sustainability, Georgia Southern University, US.

***(March 2025) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Geological Society of America – Continental Scientific Drilling Distinguished Lecture, Department of Geological Sciences and Engineering, University of Nevada in Reno, US.

***(February 2025) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Geological Society of America – Continental Scientific Drilling Distinguished Lecture, Department of Earth and Planetary Sciences, University of Texas in San Antonio, US.

***(February 2025) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Geological Society of America – Continental Scientific Drilling Distinguished Lecture, Department of Geological Sciences, University of Missouri, US.

***(January 2025) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Geological Society of America – Continental Scientific Drilling Distinguished Lecture, Department of Geology, University of Georgia, US.

***(December 2024) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Geological Society of America – Continental Scientific Drilling Distinguished Lecture, Department of Earth Sciences, University of Rome La Sapienza, Italy.

***(December 2024) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Geological Society of America – Continental Scientific Drilling Distinguished Lecture, School of Earth, Environment and Sustainability, Missouri State University, US.

**(November 2024) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Geological Society of America – Continental Scientific Drilling Distinguished Lecture, Department of Earth and Environmental Sciences, University of Ottawa, Department of Earth Sciences, Carleton University, Geological Survey of Canada, Canada.

***(October 2024) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Geological Society of America – Continental Scientific Drilling Distinguished Lecture, Department of Geological Sciences, University of Florida, US.

*(October 2024) *Does CO_2 increase the level of gas accumulation in magmas prior to eruptions? Lessons from Mt Etna (Italy)*, Department of Geological Sciences, University of Florida, US.

***(October 2024) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Geological Society of America – Continental Scientific Drilling Distinguished Lecture, Department of Earth and Space Sciences, West Chester University, US.

***(October 2024) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Geological Society of America – Continental Scientific Drilling Distinguished Lecture, Department of Earth and Environmental Sciences, Western Michigan University, US.

**(October 2024) *Moho Mission to the Foundation of Continents: The ICDP DIVE Drilling Project*, Geological Society of America – Continental Scientific Drilling Distinguished Lecture, Department of Atmospheric, Oceanic & Earth Sciences, George Mason University, US.

*(August 2024) *How to Decipher Eruptive Dynamics and Impact using Rocks, Heavy Metals, and Pop Volcanoes*, Savannah Research Ecology Laboratory, University of Georgia, US.

**(May 2023) *Lessons from the ICDP–DIVE project exploring the roots of magmatic plumbing systems in the lower continental crust*, Workshop on Genesis and dynamics of large calderas: Campi Flegrei and Campanian Plain, Naples, Italy.

*(Nov 2022) *Magma Mia! What happens before a volcanic eruption? Analysis of magma unrest using laboratory-scale in situ, time-resolved techniques*, Department of Geosciences and Geological and Petroleum Engineering, Missouri University of Science and Technology, US.

**(Nov 2022) *De Bello Vulcanico*, Department of Engineering and Geology, Università Gabriele D'Annunzio Chieti-Pescara, Italy, https://www.youtube.com/watch?v=6oMMXMQXpaU&ab_channel=Geologi%40Ud%27A

**(May 2022) *DE BELLO VULCANICO*, Department of Earth Sciences, University of Pavia, Italy.

*(Apr 2022) *How, How Fast, How Big will the Volcano Erupt? Lessons from Chimborazo Volcano*, 50th Anniversary of Escuela Superior Politécnica de Chimborazo International Conference, Riobamba, Ecuador.

*(March 2022) *How, How Fast, How Big will the Volcano Erupt?: Deciphering Magma Transport, Unrest, and Eruption using Transdisciplinary Approaches*, Department of Geology and Geophysics, Louisiana State University, US.

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86. Hetényi G., **Pistone M.**, Nabelek P., Baumgartner L.P. (2017). *Partial melting during high-grade metamorphism: Implications for orogenic systems*. AGU Fall Meeting 2017 (New Orleans, LO, USA) [#]

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95. **Pistone M.**, Caricchi L., Fife J.L., Mader K., Ulmer P., Marone F. (2013). *Bubble coalescence in magmas: insights from in-situ high-temperature synchrotron-based X-ray tomographic microscopy*. IAVCEI 2013 (Kagoshima, Japan) [#]

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98. **Pistone M.**, Caricchi L., Ulmer P., Reusser E., Mancktelow N., Burlini L. (2012). *Rheology of three-phase magmas*. VMSG 2012 (Bristol, United Kingdom) [#]

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100. Schubert M., Driesner T., Ulmer P., **Pistone M.** (2012). *Modeling magma chamber dynamics with complex rheological properties*. GeoMod 2012 (Lausanne, Switzerland) [#]

101. Fife J.L., **Pistone M.**, Mader K., Rappaz M., Stampanoni M. (2012). *In-situ investigations of the interface dynamics of materials using ultra-fast X-ray tomographic microscopy and laser heating*. First International Conference on 3D Materials Science (Pittsburgh, USA) [@]

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104. Cordonnier B., Kaus B., Manga M., Caricchi L., **Pistone M.**, Castro J., Hess K.-U., Gottschaller S., Dingwell D.B., Burlini L. (2012). *Brittle onset of monodispersed magmatic suspensions: from spheres to spheroid*. EGU Spring Meeting 2012 (Vienna, Austria) [#]

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108. **Pistone M.**, Caricchi L., Ulmer P., Mancktelow N., Reusser E., Burlini L. (2011). *Rheology of Volatile-rich Crystal Mush*. 9th Swiss Geosciences Meeting (Zurich, Switzerland) [#]

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112. Cordonnier B., Caricchi L., **Pistone M.**, Castro J., Hess K.-U., Dingwell D.B. (2010). *Rheology of pure glasses and crystal-bearing melts: from the Newtonian field to the brittle onset*. AGU Fall Meeting 2010 (San Francisco, USA) [@]

113. **Pistone M.**, Caricchi L., Ulmer P., Reusser E., Marone F., Burlini L. (2010). *The Non-Newtonian Rheology of Real Magmas: insights into 3D microstructures*. AGU Fall Meeting 2010 (San Francisco, USA) [@]

114. **Pistone M.**, Caricchi L., Ulmer P., Reusser E., Marone F., Burlini L. (2010). *The brittle/ductile transition in 3-phase felsic magmas*. 6th EURISPET (Zurich, Switzerland) [@]

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119. **Pistone M.**, Caricchi L., Ulmer P., Burlini L. (2010) *The Complex Rheology of Magmas: An Experimental Study*. EPFL First Doctoral Conference in Mechanics (Lausanne, Switzerland) [#]

120. **Pistone M.**, Caricchi L., Ulmer P., Burlini L. (2010) *Large strain experiments on crystal- and bubble-bearing silicic magmas*. Microstructures and Physico-Chemical Properties of Earth and Planetary Materials (Verbania-Pallanza, Italy) [@]

121. **Pistone M.**, Caricchi L., Ulmer P., Burlini L. (2010). *The brittle-ductile transition in crystal- and bubble-bearing silicic magmas*. Microstructures and Physico-Chemical Properties of Earth and Planetary Materials (Verbania-Pallanza, Italy) [@]

122. **Pistone M.**, Caricchi L., Ulmer P., Burlini L. (2010). *Large strain experiments on crystal- and bubble-bearing silicic magmas*. Rheology and Physical Properties of Magmas: Controls on Dynamics of Magma Transport, Storage and Eruption (Zurich, Switzerland) [@]

123. **Pistone M.**, Caricchi L., Ulmer P., Burlini L. (2010). *The brittle-ductile transition in crystal- and bubble-bearing silicic magmas*. Rheology and Physical Properties of Magmas: Controls on Dynamics of Magma Transport, Storage and Eruption (Zurich, Switzerland) [@]

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126. **Pistone M.**, Caricchi L., Burlini L., Ulmer P. (2009). *Rheological properties of crystal- and bubble-bearing silicic magmas: Preliminary experimental data*. 7th Swiss Geosciences Meeting (Neuchatel, Switzerland) [@]

127. **Pistone M.**, Caricchi L., Burlini L., Ulmer P. (2009). *Rheological properties of crystal- and bubble-bearing silicic magmas: Preliminary experimental data*. Rittmann Conference (Nicolosi, Italy) [#]

128. Masotta M., **Pistone M.**, Trigila R. (2007). *La determinazione di P, T, X_i^M per la definizione dimensionale delle camere magmatiche a partire dai prodotti eruttati: il caso dell'eruzione di Monte Nuovo (Campi Flegrei) nel 1538.* 25th GNGTS (Roma, Italy) [#]

Experimental, analytical, and computational experience

Experimental Facilities:
HT-HP Paterson-type rock deformation apparatus; HIP large capacity apparatus; Permeameter; HT Muffle; End-Loaded Piston-Cylinder; Cold-seal Vessel; TZM and HMC vessel.

Analytical Facilities:
EPMA; FEG-EPMA; SEM; FEG-SEM; STEM; SIMS; Mössbauer Spectroscopy; XRF; XRD; KFT; CO_2-Coulometry; FTIR; Raman Spectroscopy; micro-XANES; synchrotron X-ray microtomography and laser *and* induction heating systems for in-situ, time-resolved HT experiments; neutron tomography.

Computational Codes:
Operative Systems: Windows; Macintosh; Linux. Public domain software: ImageJ; JMicroVision; ParaView; Blob3D; Quant3D; Perple_X; MELTS. Other codes: MATLAB; Avizo® Fire; Adobe.

Fieldwork experience

2026 Mt Hood, Oregon, USA: pyroclastic, surge, and volcanoclastic deposits

2025 Vulture, Italy: fall-out tephra and lava deposits from a variety of explosive and effusive activity

2024 Mt Etna, Italy: fall-out tephra from paroxysm to Plinian events and volcanic soils

2023 DIVE project at the drill site DT-1a in Megolo di Mezzo, Ivrea-Verbano Zone (Italy)

Chimborazo volcano, Ecuador: fall-out, surge, and pyroclastic flow deposits

Lipari, Aeolian Islands (Italy): Rocche Rosse obsidian lava flow, Lami and Mt Pilato pyroclastic fall-out deposits

2022 Mt Etna, Italy: fall-out tephra and lava flow deposits

Chimborazo volcano, Ecuador: fall-out, surge, and pyroclastic flow deposits

Ivrea-Verbano Zone (Italy): ore deposits from lower to middle crust

2021 Graves Mountain, Georgia: metavolcanics, rutile and kyanite mine

Ivrea-Verbano Zone (Italy): lower to middle crust and mantle rocks

2020 Stone Mountain, Arabia Mountain, Georgian Appalachians: granites, gneisses, migmatites

2018 Sondalo and Val Malenco (Italy): lower to middle crust and mantle rocks, serpentinization

2017 Ivrea-Verbano Zone (Italy): lower to middle crust and mantle rocks

Cascade volcanoes (OR and WA, US): andesite to dacite volcanoes (Mt St Helens, Mt Hood, Newberry, Crater Lake), large igneous province of Columbia River

2015 Western Aleutians (AK, US): tholeiitic and calc-alkaline volcanic tephra and lava rocks

St Leonhard (Austria): mid-crustal granulites and eclogites

2013 Guernsey (Channel Islands): granite and diorite mixing and mingling

Cornwall (United Kingdom): porphyry ore deposits

2012 Torres del Paine (Chile) and Fitz Roy (Argentina): pluton mechanics and contact aureole

Lipari, Aeolian Islands (Italy): Rocche Rosse obsidian lava flow

2010 Mono Crater, Onion Valley, Sawmill Creek, Big and Little Glass Mountain, Mount Shasta, Sierra Nevada (CA, US): mid- and upper crustal granitoid plutons to silica-rich volcanic domes

2009 Tenerife and La Palma, Canary Islands (Spain): caldera-forming ignimbrite and lava flow deposits

Adamello Massif (Italy): pluton emplacement, magma mingling, and contact aureole

2007 Somma-Vesuvius (Italy): fallout pumice deposits of Avellino Plinian Eruption

Monte Nuovo, Phlegrean Fields (Italy): phreatomagmatic to magmatic eruption style deposits