Curriculum vitae and Track Record

PERSONAL DETAILS

Colombier, Mathieu
Home address: Balanstrasse 168a, 81549 Munich, Germany
Date of birth: 29.04.1989
Place of birth: Grenoble, France
Email: m.colombier@lmu.de
https://orcid.org/0000-0001-9485-176X

- **Education and key qualifications**

01.04.2015-25.06.2018 PhD (Dr. rer. nat.), Volcanology; Summa Cum Laude (with highest honor)
Department of Earth and Environmental Sciences, Chair for Mineralogy, Petrology and Geochemistry, Ludwig Maximilian University, Germany
PhD title: "The role of percolation threshold and water-magma interaction on volcanic eruptive style". PhD supervisor: Professor Donald Dingwell

2011-2013 Master, Volcanology
University Blaise Pascal, Laboratoire Magmas et Volcans of Clermont-Ferrand, France

- **Current position**

Sept 2022-ongoing Postdoctoral Researcher
Department of Earth and Environmental Sciences, Chair for Mineralogy, Petrology and Geochemistry, Ludwig Maximilian University, Germany
Funded by ERC project EAVESDROP

Oct 2018- Sept 2022 University Professor
Department of Earth and Environmental Sciences, Chair for Mineralogy, Petrology and Geochemistry, Ludwig Maximilian University, Germany

Jun 2018- Oct 2018 Postdoctoral Researcher
Department of Earth and Environmental Sciences, Chair for Mineralogy, Petrology and Geochemistry, Ludwig Maximilian University, Germany
Funded by ERC project EVOKES

RESEARCH ACHIEVEMENTS AND PEER RECOGNITION

Research achievements

Google Scholar h-index: 14, i10-index: 18, citations: 696, 22 publications, 11 first-author publications

List of 10 relevant publications

1. Colombier, M., Gurioli, L., Druitt, T. H., Shea, T., Boivin, P., Miallier, D., & Cluzel, N. (2017). Textural evolution of magma during the 9.4-ka trachytic explosive eruption at Kilian Volcano, Chaîne des Puys, France. Bulletin of Volcanology, 79(2), 17. https://doi.org/10.1007/s00445-017-1099-7

2. Colombier, M., Wadsworth, F. B., Gurioli, L., Scheu, B., Kueppers, U., Di Muro, A., & Dingwell, D. B. (2017). The evolution of pore connectivity in volcanic rocks. Earth and Planetary Science Letters, 462, 99-109. https://doi.org/10.1016/j.epsl.2017.01.011

3. Colombier, M., Scheu, B., Wadsworth, F. B., Cronin, S., Vasseur, J., Dobson, K. J., et al. (2018). Vesiculation and quenching during Surtseyan eruptions at Hunga Tonga-Hunga Ha'apai volcano, Tonga. Journal of Geophysical Research: Solid Earth, 123, 3762–3779. https://doi.org/10.1029/2017JB015357

4. Colombier, M, Scheu, B., Kueppers, U., Cronin, S., Mueller, S.B., Hess, K-U, Wadsworth, F. B., et al. "In situ granulation by thermal stress during subaqueous volcanic eruptions." Geology 47, no. 2 (2019): 179-182. https://doi.org/10.1130/G45503.1

5. Colombier, M, Mueller, S.B., Kueppers, U., Scheu, B., Delmelle, P., Cimarelli C., Cronin, S.J., Brown, R.J., Tost, M., Dingwell, D.B., (2019) "Diversity of soluble salt concentrations on volcanic ash aggregates from a variety of eruption types and deposits" Bulletin of Volcanology 81 :39. https://doi.org/10.1007/s00445-019-1302-0

6. Colombier, M., Wadsworth, F.B., Scheu, B. et al. In situ observation of the percolation threshold in multiphase magma analogues. Bull Volcanol 82, 32 (2020). https://doi.org/10.1007/s00445-020-1370-1

7. Colombier, M., Vasseur, J., Houghton, B. F., Cáceres, F., Scheu, B., Kueppers, U., ... & Dingwell, D. B. (2021). Degassing and gas percolation in basaltic magmas. Earth and Planetary Science Letters, 573, 117134. https://doi.org/10.1016/j.epsl.2021.117134

8. Colombier, M., Bernard, B., Wright, H., Le Pennec, J. L., Caceres, F., Cimarelli, C., ... & Dingwell, D. B. (2022). Conduit processes in crystal-rich dacitic magma and implications for eruptive cycles at Guagua Pichincha volcano, Ecuador. *Bulletin of Volcanology*, *84*(12), 105. https://doi.org/10.1007/s00445-022-01612-1

9. Colombier, M., Manga, M., Wright, H., Bernard, B., deGraffenried, R., Caceres, F., ... & Dingwell, D. B. (2023). Pre-Eruptive Outgassing and Pressurization, and Post-Fragmentation Bubble Nucleation, Recorded by Vesicles in Breadcrust Bombs From Vulcanian Activity at Guagua Pichincha Volcano, Ecuador. *Journal of Geophysical Research: Solid Earth*, *128*(9), e2023JB026775. https://doi.org/10.1029/2023JB026775

10. Colombier, M., Ukstins, I. A., Tegtmeier, S., Scheu, B., Cronin, S. J., Thivet, S., ... & Dingwell, D. B. (2023). Atmosphere injection of sea salts during large explosive submarine volcanic eruptions. Scientific Reports, 13(1), 14435. https://doi.org/10.1038/s41598-023-41639-8

Peer recognition

Invited presentation at the halogen workshop of Orléans in November 2024: "Volcanic halogens across the earth system: from magma to atmosphere" organized by Dr. Tjarda Roberts, Dr. Nicole Bobrowski, Dr. Elena Maters, Alexander Nies and Prof. Thomas Wagner.

ADDITIONAL INFORMATION

Grants awarded

2020	Eurovolc TNA project	2,100 EUR

Funded proposal "TEPHRA: TExtural Properties, tHermal history and monitoRing of explosive bAsaltic eruptions"

2017	Swiss Light Source	60,000 EUR

Funded proposal for in situ vesiculation experiments at the synchrotron of the Paul Scherer Institute, Villigen, Switzerland

2019-ongoing	LMU Mentoring Program	15,000 EUR

International conferences and workshops

Selection of 10 presentations out of 20 in total

April 2024	European Geosciences Union 2024, Vienna (Austria)
February 2024	Cities on Volcanoes (Guatemala)
October 2023	Training school on "Convective and Volcanic Clouds (CVC) detection, monitoring and modelling", Nicolosi (Italy)
September 2023	Oceanic Volcanism Workshop at GEOMAR, Kiel (Germany)
September 2022	Rittmann conference, Catania (Italy)
January 2020	Goldschmidt 2020 (USA, Online).
April 2019	European Geosciences Union 2019, Vienna (Austria).

April 2018	European Geosciences Union 2018, Vienna (Austria).
August 2017	International Association of Volcanology and Chemistry of the Earth's Interior 2017, Portland (USA).
December 2016	American Geophysical Union 2016, San Francisco (USA).

Teaching Experience

2018-2024 Lecturer (80% in German, 20% in English):

Thermodynamics (3rd semester B. Sc. Course)/ Phase equilibria (3rd semester B. Sc. Course)/ Petrology (4th semester B. Sc. Course)/ Rock-forming minerals (3rd semester B. Sc. Course)/ Geomaterials (1st semester B. Sc. Course)/ Geomaterials (3rd semester B. Sc. Course)/ Applied Physics and Chemistry of Melts (3rd semester M. Sc. Course)/ Microscopy (1st semester B. Sc. Course)/ Rocks (2nd semester B. Sc. Course)/ Petrophysics (2nd semester M. Sc. Course)

Student supervision

PhD projects:

Ongoing: Supervision of a PhD project by Carolina Almeida Figueiredo: "Unravelling magma fragmentation and pyroclasts transport from textural and morphological analysis of pyroclasts"

Bachelor projects:

2023 Paul Herwergh (BSc Student at LMU). Topic: "Evolution of porosity with grain size in pyroclasts"

2022 Clara Nuszer (BSc Student at LMU). Topic: "Morphological analysis of pumice clasts from Guagua Pichincha volcano, Ecuador"

Reviewed articles

Zahasky et al., 2018 https://doi.org/10.1016/j.advwatres.2018.08.009; **Vieira et al., 2021** https://doi.org/10.1016/j.apradiso.2021.109657; **Pegler and Ferguson, 2021** https://doi.org/10.1038/s41467-021-22439-y; **Mitchell et al., 2021** https://doi.org/10.1007/s00445-021-01497-6; **Almeida Figueiredo et al., 2020** https://doi.org/10.1016/j.jvolgeores.2022.107575; **Yeo et al., 2022** https://doi.org/10.1038/s41598-022-11133-8; **Andrews and Quane, 2022** https://doi.org/10.1007/s00445-023-01677-6; **Aubin et al., 2023** https://doi.org/10.3389/feart.2023.1183923; **Falasconi et al., 2023** https://doi.org/10.1016/j.jvolgeores.2023.107961; **Valdivia et al., 2024** https://doi.org/10.1007/s00445-021-01514-8; **Van Helden et al., 2024** https://doi.org/10.1186/s13617-024-00145-w; **Vergniolle et al., 2024** https://10.1029/2023JB028161; **Takeuchi et al., 2024** https://doi.org/10.1186/s40645-024-00652-9; **Moitra et al., 2025** https://doi.org/10.1029/2024GC011932; **Oppenheimer et al., 2025** https://doi.org/10.1007/s00445-025-01855-8; **Hotta et al., 2025** https://doi.org/10.1029/2024JB030966;