

DR. PAUL ANTHONY WALLACE Ph.D., MGeol (Hons)

Akademischer Rat auf Zeit

 Ludwig-Maximilians-Universität München, Munich 80333, Germany

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EDUCATION

- 2015–2019 **Doctor of Philosophy (Ph.D.)**
University of Liverpool, UK
Research topic: Volcanology & Magmatic Processes
Dissertation: *Dynamic petrology and rheology of ascending magma during lava dome eruptions: effusive–explosive activity*
Supervisors: Prof. Yan Lavallée & Dr. Jackie E. Kendrick
- 2011–2015 **Master of Geology (Honours) – First class (Hons) – Awarded best MGeol performance**
University of Plymouth, UK
BSc dissertation: *A geological analysis of the Isle of Kerrera, NW Scotland*
Master's dissertation: *Vulcanian explosions at the type locality at Vulcano, Sicily*
Supervisors: Prof. Paul D. Cole, Dr. Arjan Dijkstra & Dr. Graham Taylor

EMPLOYMENT/EXPERIENCE

- 10.2023–present **Akademischer Rat auf Zeit (Assistant Professor)**
Ludwig-Maximilians-Universität München (LMU, Munich), Germany
 - Department of Earth and Environmental Sciences
 - Experimental volcanology and petrology
- 10.2022–09.2023 **FNRS Senior Research Fellow (Chargé de Recherches) – 3-year fellowship**
Université libre de Bruxelles (ULB, Brussels), Belgium
 - Assessing the role of magma volatiles on explosive silicic peralkaline eruptions along the East African Rift (Volatear project) – PI: Dr. Paul A. Wallace
- 07.2020–09.2022 **Post-doctoral Researcher in Volcanology**
Université libre de Bruxelles (ULB, Brussels), Belgium
 - Laboratory G-Time (Geochemistry: Tephra, Isotopes, Minerals & Elements) research group
 - Rates of Volcanism and Volatile Discharge in a Continental Rift Setting (VolKenya project) – Promoter: Prof. Karen Fontijn
- 08.2019–06.2020 **Lecturer in Geology (Full-Time)**
University of Liverpool, UK
 - Member of the volcanology and geothermal research group
- 04.2019–07.2019 **Research Excellence Framework (REF) Impact Case Research Assistant**
University of Liverpool, UK
 - Consolidating impact partnerships between the University of Liverpool and Guatemala: implementing a resilience strategy for volcanic hazards
 - Supervisors: Prof. Yan Lavallée & Dr. Silvio De Angelis
- 01.2019–04.2019 **Research Assistant**
University of Liverpool, UK
 - Linking petrological and geophysical observations during 2015–2016 explosive activity at Santiaguito dome complex, Guatemala
 - Supervisors: Dr. Pablo J. Gonzalez, Prof. Yan Lavallée & Dr. Silvio De Angelis
- 07.2018–12.2018 **Laboratory Research Technician**
University of Liverpool, UK
 - Experimental volcanology and geothermal laboratory
- 08.2015–07.2019 **Teaching Assistant/Demonstrator**
University of Liverpool, UK
 - Roles: Teaching in class, practical demonstrations, fieldwork, examiner, and marker
- 11.2017–12.2017 **University of Alaska Fairbanks Visiting Researcher**
University of Alaska Fairbanks (UAF) & Alaska Volcano Observatory (AVO), USA
 - Experimental study of hydrous mineral stability in magmas
 - Based in Experimental Petrology Laboratory and Geophysical Institute
 - Host: Prof. Jessica Larsen

ACADEMIC ACKNOWLEDGEMENTS, AWARDS & GRANTS

2022	FNRS Senior Research Fellowship (Chargé de Recherches) Grant
2019	University of Liverpool Earth Science Research Grant Editor's Choice for publication on 'magmatic shear zones' in Journal of Petrology 2019 International Union of Geodesy and Geophysics (Montreal) Travel Award PhD dissertation highly commended and awarded with no corrections
2018	Tectonic Studies Group conference special recognition Liverpool doctoral college scholarship European Geoscience Union ECR Travel Award Volcanic and Magmatic Studies Group Travel Award
2016	European Geoscience Union ECR Travel Award Volcanic and Magmatic Studies Group conference special recognition
2015	University Bookseller Prize of achievement for best Master's degree performance
2011–2015	Placed on the Dean's List of Academic Excellence at University of Plymouth

TEACHING ACTIVITIES (UNDERGRADUATE [UG])/GRADUATE [G])

2023–2025	Igneous and Metamorphic Petrology (Year 4 [UG])
2023–2025	Polarized Microscopy (Year 3 [UG])
2022–2023	Volcanology Eifel (Laacher See) fieldwork, Germany (Master's level [G])
2021	Volcanology course at Dedan Kimathi Univ. of Technology (DeKUT), Kenya (Master's level [G])
2019–2020	Volcanology and Geohazards (Year 2 [UG] – module leader)
2019–2020	Igneous petrology and rock textures (Year 1 & 2 [UG])
2019–2020	Research Methods (Master's level [G])
2019–2020	Workshop on "melt viscometry and magma rheology" (Master's level [G])
2019–2020	Geohazards and Risk Mitigation (Master's level [G] – module leader)
2019–2020	Earth Structure and Plate Tectonics (Year 1[UG] – module leader)
2019–2020	Introduction to Geoscience (Year 1[UG] – solar system evolution and volcanic eruptions)
2017–2019	Advanced Geology Research Project (Master's level [G])
2016–2019	Field Mapping Techniques (Year 2 [UG] – Almeria, SE Spain)
2017	Crust and Mantle Evolution (Year 3 [UG])
2016–2017	Minerals, Magmas and Volcanoes (Year 1 [UG])
2015–2017	Geology for Civil Engineers (Year 2 [UG])

STUDENT SUPERVISION

Lorenzo Cappelli (2020–2025 PhD project)	<i>"Volatile degassing in the southern East African Rift"</i>
Myriam Marchand (2024–2025 MSc research project)	<i>"Magmatic evolution of the Longonot volcano in Kenya"</i>
Victor Meli Sonwa (2021 MSc research project)	<i>"Physical classification of the Maiella pumice, Olkaria"</i>
Katy Holmes (2018 MSci research project)	<i>"Magma mixing in the Inyo volcanic chain, USA"</i>
Harriet Williams (2019 3 rd year BSc dissertation)	<i>"Geological history of Brittany, NW France"</i>
Alice Glover (2019 3 rd year BSc dissertation)	<i>"Geological history of Brittany, NW France"</i>
Abigail Plimmer (2019 3 rd year BSc dissertation)	<i>"Geological history of Brittany, NW France"</i>
Robert Barlow (2019 3 rd year BSc dissertation)	<i>"Geological history of Brittany, NW France"</i>
Lab manager of the hydrothermal experimental petrology lab at LMU.	
Training users on electron microscopy facilities, laboratory analytical equipment and sample preparation.	

EXPERIMENTAL/ANALYTICAL EXPERTISE

Analytical	Electron probe microanalysis (EPMA)
	Scanning Electron Microscopy (SEM) and Electron Backscatter Diffraction (EBSD)
	X-ray Fluorescence (XRF), X-ray Diffraction (XRD), QEMSCAN®
	Synchrotron FTIR (Diamond Light Source, UK)
	Simultaneous Thermal (STA), Thermo-Gravimetric (TGA) & Thermal Mechanical Analyser (TMA)
	Helium pycnometer (Micromeritics)
Experimental	Field CO₂ soil gas accumulation chamber (PP Systems)
	Experimental petrology apparatus (cold-seal pressure vessels)
	High-velocity rotary shear apparatus
	High-temperature rheology apparatus
	Synchrotron 4D X-ray Tomography (Diamond Light Source, UK)

TRAINING COURSES/INVITED WORKSHOPS

2023	Invited NSF GeoPRISMS Southern East African Rift Workshop, Malawi Modelling volatile behaviour in magmas, IAVCEI, Rotorua, New Zealand Thermodynamic Modeling of Volcanic Systems using MELTS, IAVCEI, Rotorua, New Zealand
2017	NERC Electron Probe Microanalysis (EPMA) training, University of Oxford, UK NERC ATSC advanced fundamentals of EPMA, University of Bristol, UK Experimental methods in Earth science University of Liverpool, UK
2016	Melts, Glasses, Magmas, Ludwig Maximilians Universität München, Germany LA-ICP-MS mapping workshop, Trinity College Dublin, Ireland Chemical changes in rocks: Driving forces & mechanisms, University of Liverpool, UK Graduate Teaching Assistant training, University of Liverpool, UK
2015	Melts, Glasses, Magmas, Ludwig Maximilians Universität München, Germany

FIELDWORK EXPERIENCE

2024	Namibia
2023	Taupō volcano, New Zealand
2022 & 2023	Eifel Volcanic Field, Germany
2021 & 2022	Greater Olkaria Volcanic Complex & Mt. Longonot, Kenya
2019	Santa Maria volcano and Santiaguito dome complex, Guatemala Volcán de Fuego, Guatemala Pacaya volcano, Guatemala
2018	Mount Vesuvius, Italy
2017	Mount St. Helens volcano, Washington, USA Long Valley Caldera and Mono-Inyo domes, California, USA
2016	Unzen volcano, Japan
2015	San Andreas Fault & Death Valley, California, USA IODP Bremen Core Repository
2014	Mount Etna & Aeolian Islands, Sicily Isle of Kerrera, NW Scotland
2013	Spanish Pyrenees, Spain

SOCIETAL ACTIVITIES

2022	MSc Geothermal student career development workshop at Dedan Kimathi University of Technology, Kenya
2022	Olkaria Primary School & Maasai community outreach, Kenya
2017	Co-organiser of the "Joint Assembly" (attendance: 450) of the Tectonics (TSG), Volcanic and Magmatic (VMSG) and Geophysics (BGA) groups meeting, Liverpool (2017)
2017	Manchester Science Festival. Royal Society Science Exhibition on "4D Science"
2016	London Royal Society Science Summer Exhibition. Exhibition on "Visible Science: bringing science to life via 4D synchrotron x-ray tomography"

CONFERENCES ATTENDED

2025	IAVCEI 2025, Geneva, Switzerland
2024	European Geosciences Union (EGU) General Assembly, Vienna, Austria
2024	Krafla Magma Test Bed (KMT) Workshop, Munich, Germany
2024	Physics of Volcanoes (PoV), 10 th German Volcanology Workshop, Oberpfaffenhofen, Germany
2023	IAVCEI 2023, Rotorua, New Zealand
2021	American Geophysical Union (AGU) Fall Meeting, New Orleans, USA
2021	Virtual Volcanic and Magmatic Studies Group (VMSG), Manchester, UK
2020	Volcanic and Magmatic Studies Group (VMSG), Plymouth, UK
2019	International Union of Geodesy and Geophysics (IUGG), Montreal, Canada
2018	Cities on Volcanoes (COV) 10, Napoli, Italy
2018	Joint Tectonic and Metamorphic Studies Group (TSG & MSG), Plymouth, UK
2017	American Geophysical Union (AGU) Fall Meeting, New Orleans, USA
2017	IAVCEI 2017, Portland, Oregon, USA
2017	European Geosciences Union (EGU) General Assembly, Vienna, Austria
2017	Joint Assembly, VMSG-TSG-MSG, Liverpool, UK
2016	European Geosciences Union (EGU) 2016, Vienna, Austria
2016	Volcanic and Magmatic Studies Group (VMSG), Dublin, Ireland

For a full and up-to-date publication list, see [Google Scholar](#).

Published

1. **Wallace, P.A.**, De Angelis, S.H., Larsen, J., Caricchi, L., Kendrick, J.E., Lavallée, Y. (2025). **CO₂ flushing and redox as drivers of pre-eruptive amphibole breakdown.** *Earth and Planetary Science Letters*, **667**, 119532. <https://doi.org/10.1016/j.epsl.2025.119532>
2. *Cappelli, L., **Wallace, P.A.**, Ernst, G. G. J., Mbede, E., Kwelwa, S., Abdallah, E., & Fontijn, K. (2025). **Pre-eruptive reservoir conditions of the peralkaline Rungwe Pumice Plinian eruption (Tanzania) from haüyne-hosted melt inclusions.** *Journal of Petrology*, **66**, egaf079. <https://doi.org/10.1093/petrology/egaf079>
3. **Wallace, P.A.**, Otieno, V., Godec, P., Njoroge, R.W., Tubula, M.S., Cappelli, L., Kamau, P.M., Nomade, S., Mariita, N.O., Fontijn, K. (2025). **Temporal and spatial evolution of explosive silicic peralkaline eruptions at the Olkaria Volcanic Complex and Mt. Longonot (Central-Southern Kenyan Rift).** *Journal of Volcanology and Geothermal Research*, **460**, 108275. <https://doi.org/10.1016/j.jvolgeores.2025.108275>
4. Tadesse, A.Z., Fontijn, K., **Wallace, P.A.**, Gurioli, P., Laha, P., Terryn, H., Ayalew, D. (In Review). **Eruption style and dynamics of the ~87 ka Baricha peralkaline rhyolite eruption in Ethiopia.** *Bulletin of Volcanology*, **86**, 93. <https://doi.org/10.1007/s00445-024-01787-9>
5. Cappelli L., **Wallace P.A.**, Randazzo A., Kamau P.M., Njoroge R.W., Otieno V., Tubula M.S., Mariita, N.O., Mangi P., Fontijn K. (2024). **Diffuse soil CO₂ emissions at rift volcanoes: Structural controls and total budget of the Olkaria Volcanic Complex (Kenya) case study.** *Journal of Volcanology and Geothermal Research*, **443**, 107929. <https://doi.org/10.1016/j.jvolgeores.2023.107929>
6. Lavallée, Y., Miwa, T., Ashworth, J.D., **Wallace, P.A.**, Kendrick, J.E., Coats, R., Lamur, A., Hornby, A., Hess, K.-U., Matsushima, T., Nakada, S., Shimizu, H., Ruthensteiner, B., Tuffen, H. (2022). **Transient conduit permeability controlled by a shift between compactant shear and dilatant rupture at Unzen volcano (Japan),** *Solid Earth*, **13**, 875–900. <https://doi.org/10.5194/se-2021-127>
7. Yilmaz T.I., Wadsworth F.B., Gilg H.A., Hess K.U., Kendrick J.E., **Wallace P.**, Lavallée Y., Utleý J., Vasseur, J., Nakada S., Dingwell D.B. (2022). **Rapid alteration of fractured volcanic conduits beneath Mt Unzen.** *Bulletin of Volcanology*, **83**, 34. <https://doi.org/10.1007/s00445-021-01450-7>
8. **Wallace, P.A.**, Lamb, O., De Angelis, S., Kendrick, J.E., Hornby, A., Díaz-Moreno, A., Gonzalez, P.J., von Aulock, F.W., Lamur, A., Utleý, J.E.P., Chigna, G., Rietbrock, A., Lavallée, Y. (2020). **Integrated constraints on explosive eruption intensification at Santiaguito dome complex, Guatemala.** *Earth and Planetary Science Letters*, **536**, 116139. <https://doi.org/10.1016/j.epsl.2020.116139>
9. Hughes, A., Kendrick, J.E., Lamur, A., Wadsworth, F.B., **Wallace, P.A.**, Di Toro, G., Lavallée, Y. (2020). **Frictional behaviour, wear and comminution of synthetic porous geomaterials.** *Frontiers in Earth Science*. <https://doi.org/10.3389/feart.2020.562548>
10. Hughes, A., Kendrick, J.E., Salas, G., **Wallace, P.A.**, Legros, F., Di Toro, G. Lavallée, Y., (2020). **Shear localisation, strain partitioning and frictional melting in a debris avalanche generated by volcanic flank-collapse.** *Journal of Structural Geology*, 104132. <https://doi.org/10.1016/j.jsg.2020.104132>
11. Eggertsson, G., Kendrick, J.E., Weaver, J., **Wallace, P.A.**, Utleý, J.E.P., Bedford, J., Allen, M., Markússon, S., Worden, R., Faulkner, D.R., Lavallée, Y. (2020). **Compaction of hyaloclastite from the active geothermal system at Krafla volcano, Iceland.** *Structural Controls on Basin- and Crustal-Scale Fluid Flow and Resulting Mineral Reactions*, special issue of *Geofluids*. <https://doi.org/10.1155/2020/3878503>
12. Carter, W., Rietbrock, A., Lavallée, Y., Kendrick, J.E., Gottschämmmer, E., Díaz Moreno, A., Kendrick, J.E., Lamb, O.D., **Wallace, P.A.**, Chigna, G., De Angelis, S. (2020). **A four-year explosive record at Volcán Santiaguito, Guatemala: Monitoring shifts in explosivity using seismic and infrasound datasets.** *Journal of Volcanology and Geothermal Research*. <https://doi.org/10.1016/j.jvolgeores.2020.106891>
13. Weaver, J., Eggertsson, G., Utleý, J.E.P., **Wallace, P.A.**, Lamur, A., Kendrick, J.E., Tuffen, H., Markússon, S., Lavallée, Y. (2020). **Thermal liability of hyaloclastite in the Krafla geothermal reservoir, Iceland: the impact of phyllosilicates on permeability and rock strength.** *Structural Controls on Basin- and Crustal-Scale Fluid Flow and Resulting Mineral Reactions*, special issue of *Geofluids*.
14. ***Wallace, P.A.**, Kendrick, J.E., Ashworth, J.D., Miwa, T., Coats, R., De Angelis, S.H., Mariani, E., Utleý, J., Biggin, A., Kendrick, R., Nakada, S., Matsushima, T., Lavallée, Y. (2019). **Petrological architecture of a magmatic shear zone: A multidisciplinary investigation of strain localisation during magma ascent at Unzen Volcano, Japan.** *Journal of Petrology*, **60**(4), 791–826. <https://doi.org/10.1093/petrology/egz016>
15. **Wallace, P.A.**, De Angelis, S.H., Hornby, A., Kendrick, J.E., Clesham, S., von Aulock, F.W., Hughes, A., Utleý, J., Hirose, T., Dingwell, D.B., Lavallée, Y. (2019). **Frictional melt homogenisation during fault slip: Geochemical, textural and rheological fingerprints.** *Geochimica et Cosmochimica Acta*, **255**, 265–288. <https://doi.org/10.1016/j.gca.2019.04.010>
16. Mordensky, S., Kennedy, B., Villeneuve, M., Lavallée, Y., Reichow, M., **Wallace, P.A.**, Siratovich, P., Gravley, D. (2019). **Increasing the permeability of hydrothermally altered andesite by transitory heating.** *Geochemistry, Geophysics, Geosystems*. <https://doi.org/10.1029/2019GC008409>

17. Lamb, O.D., Lamur, A., Díaz-Moreno, A., De Angelis, A., Hornby, A., von Aulock, F.W., Kendrick, J.E., **Wallace, P.A.**, Rietbrock, A., Alvarez, A., Chigna, G., Lavallée, Y. (2019). **Explosive disruption of long-term eruptive activity at Santiaguito, Guatemala.** *Frontiers in Earth Science*. <https://doi.org/10.3389/feart.2018.00253>
18. Harnett, C.E., Kendrick, J.E., Lamur, A., Thomas, M., Stinton, A., **Wallace, P.A.**, Utley, J., Murphy, W., Neuberg, J., Lavallée, Y. (2019). **Evolution of mechanical properties of lava dome rocks across the 1995-2010 eruption of Soufrière Hills volcano, Montserrat.** *Frontiers in Earth Science*. <https://doi.org/10.3389/feart.2019.00007>
19. Coats, R., Kendrick, J.E., **Wallace, P.A.**, Miwa, T., Hornby, A., Matsushima, T., Lavallée, Y. (2018). **Failure criteria for porous dome rocks and lavas: a study of Mt. Unzen, Japan.** *Solid Earth*, **9**, 1299–1328. <https://doi.org/10.5194/se-9-1299-2018>
20. Esse, B., Burton, M., Varnam, M., Kazahaya, R., **Wallace, P.A.**, von Aulock, F.W., Lavallée, Y., Salerno, Y., Scollo, Y., Coe, H. (2018). **Quantification of ash sedimentation dynamics through depolarisation imaging with AshCam drill core.** *Nature Scientific Reports*, **8**, 15680. <https://doi.org/10.1038/s41598-018-34110-6>